

CASE INSTRUCTION

**SERIAL NUMBERS 11 TO 20
GROUNDING CASES**

NAVY DEPARTMENT - - Bureau of Navigation

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Prepared by the Training Division
Bureau of Navigation



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1930

PREFACE

The grounding cases published herein are of the type of Case Instruction furnished to the Postgraduate School for the particular use of the General Line Class. They are compiled from experience and furnish a short cut to the study of some of the principal faults to be avoided in navigation.

GROUNDING CASE NO. 1

Principal Points Involved.

- (a) Identification of lights.
- (b) The commanding officer's checking the position as plotted by the navigator.

Findings and Recommendations of the Court of Inquiry.

- (1) That the failure to time flashes of lights and to check the characteristics were the principal causes of the grounding.
- (2) That the commanding officer and the navigator were guilty of negligence and their trial by court-martial was recommended.

(1)

GROUNDING CASE NO. 1

A battleship was finishing her overhaul period at the navy yard, New York. Her navigator had been detached, and another officer had reported for that duty. He had just finished a tour of shore duty as an engineer officer at one of the navy yards. He had had no previous experience as a navigator. During the docking at the end of the overhaul the pitch of the screws had been changed.

On completion of the overhaul, the ship was ordered to proceed to the fleet rendezvous, to the northwestward of Block Island, R. I.

One morning in September she left the yard and proceeded to sea. After leaving the harbor she proceeded along the south coast of Long Island. The weather was fair; wind south, force 2-3; light haze with the visibility about 8 miles. Standard speed was 12 knots. The course was set as 66° true when east of Shinnecock.

The captain, after a conference with the navigator prior to departure, decided to use the swept channel to the eastward of Block Island. The country was in a state of war. The channel was swept for mines daily. Information as to the condition and the turning points in the channel was sent daily, by radio, to ships.

On the night that the battleship was to use this channel it was 1,000 yards wide, and was located as follows:

Entrance, longitude 71° 26' 30'' W., latitude 41° 04' N., with Southeast Light, Block Island, bearing 317° true.

On entering the channel the courses and distances to be steered on the different legs were as follows:

	Course	Distance
		<i>Miles</i>
First leg.....	315° true.....	4
Second leg.....	356° true.....	6½
Third leg.....	315° true.....	4
Fourth leg.....	260° true.....	5

The ship's position was accurately fixed while proceeding along the south coast of Long Island. The navigational aids were used and the fixes obtained by cross bearings.

At 0204 Montauk Point Light was abeam to port, distant 8.2 miles. The ship's course was 66° true. Montauk Point Light and Montauk Shoal Light Buoy were in line, bearing 312° true at 0221.

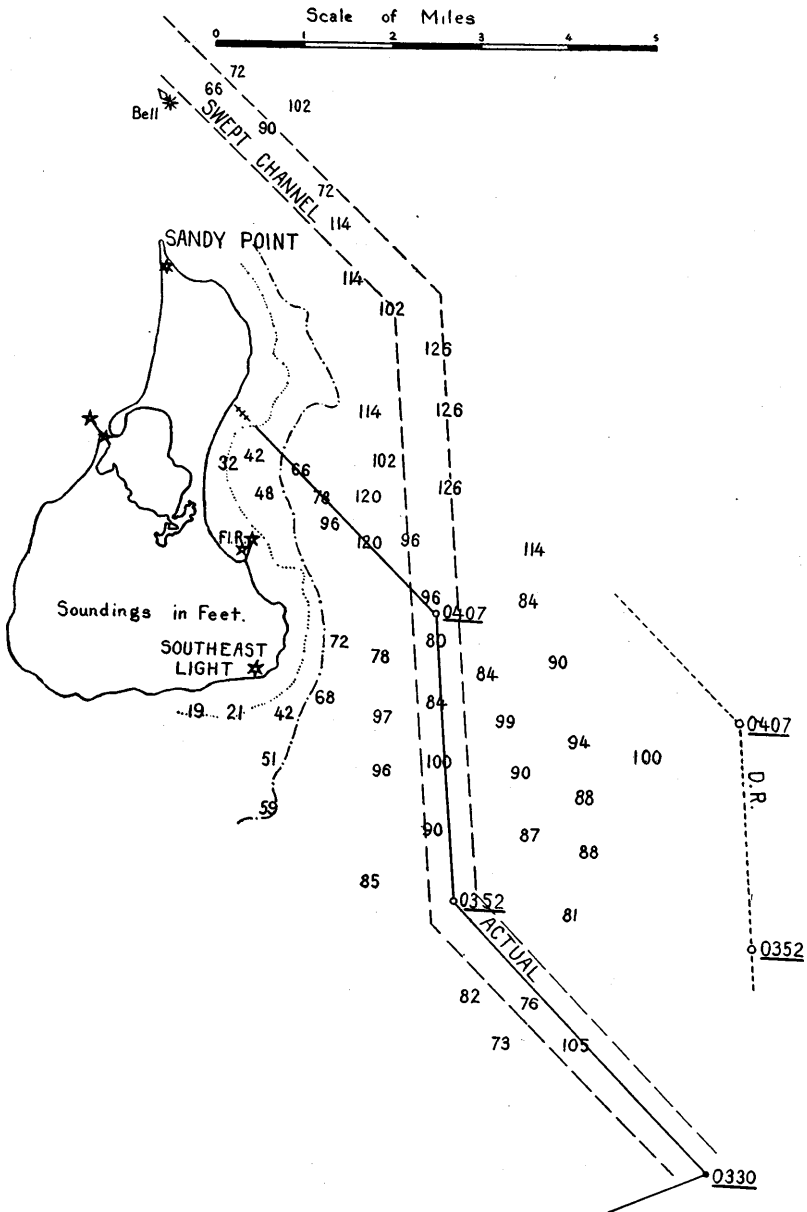


FIGURE 1

Southeast Light on Block Island was sighted at 0258 bearing 7° true. The position was located on this bearing by using the distance run from the time Montauk Point Light was abeam and the position at that time.

Southeast Light was abeam at 0320, and the position was plotted by using distance run between bearings and course steered. At 0330 the light bore 317° true, and the course was changed to 315° true. The ship then stood up the first reach of the channel.

Two minutes were allowed in which to make the turn. She then stood on, on the course 315° , for 20 minutes. This covered the first reach of the channel.

The captain had taken the con on entering the first reach of the channel.

He changed course at 0352 to 356° true, the course up the second reach. Shortly after completing this change of course a flashing white light was sighted three points on the port bow.

At 0400 the watch was changed. The officer of the deck turned over to his relief that the ship was in the swept channel, that the red light on the west breakwater of Block Island had been sighted to the right of the flashing white light.

The new officer of the deck testified that he knew the ship was close to land, but that he did not consider it his duty to burden the captain or the navigator with this fact, as they were busy with the piloting. Also, he was busily engaged in watching the lights of fishing vessels that were close aboard.

The navigator took bearings of this light. He stated that he believed it to be Block Island North Light, located on Sandy Point. It was reported to the captain as being that light.

The position was plotted, using Southeast Light and North Light. This position was about 4 miles to the eastward of the dead reckoning position in the swept channel. A second position was plotted from a second round of bearings, using the same lights. This position corresponded closely to the preceding one.

The navigator assumed that the ship was located as the plots indicated.

As the ship proceeded to the north, two more positions were plotted. They all plotted to the east of the swept channel. The captain therefore ordered the course changed to 315° , in order to bring the ship back to the swept channel. This was done at 0407.

A fifth round of bearings was taken and the position plotted. The position as plotted put the ship to the north and east of Block Island.

About 0400 a flashing white light was reported as being sighted about ahead. It was reported as being North Reef Gas and Bell Buoy.

About 0410 a light that was presumed to be Point Judith Light was sighted. It was so reported, but it was not identified with accuracy.

Neither of these two lights were used in plotting the ship's position.

A fixed red light was sighted about 0415 and reported as being a little to the right of the flashing white light, used as Block Island North Light. Lights on the western side of the island and the navigational lights on the breakwater at the entrance to Great Salt Pond can be seen by a vessel to the eastward of the island across the low ground in the middle of the island.

After the last position was plotted the navigator reported it to the captain, and also stated that it did not seem correct to him. As soon as the captain was informed of this position he said that it was impossible. He gave the following orders: "At 0425 stop both engines; at 0426 back full speed both engines."

The officer of the deck at this time reported land dead ahead.

At 0427 the ship grounded in the following position: 800 yards, 168° true, from Balls Point on the east coast of Block Island.

As a result of this grounding there was a court of inquiry, and the following facts, in addition to the above, were brought out:

The captain and the navigator had both studied the charts, light list, and the sailing directions. The courses and the lights to be used in the navigation had been checked and the characteristics of the main light to be used checked.

The captain informed the navigator of the method that he preferred to have used in the plotting of positions and the use of bearings and run between. He checked the navigation from the time of leaving the navy yard up until the time that the ship entered the swept channel. From the time of entering until the grounding he did not look at the chart or otherwise check up on the navigation.

His reasons for not looking at the charts after entering the channel were that he was busily engaged in watching other ships in the vicinity and that he considered it unsafe to leave his post near the wheel.

He was dissatisfied with the last position reported, and he slowed and stopped with the intention of accurately fixing the position. However, he was satisfied with the checking of the lights by timing their characteristics.

He had the sounding machine manned and soundings taken. Leadsmen were in the chains and all other precautions were taken to assure the receiving of proper information.

The captain made no check to see that the lights used were correctly identified. He said that he considered that the navigation

was not of a difficult nature because of the fact that there were so many lights in sight.

The court found the following facts proved:

That the fix at 0328 by bow and beam bearing on Southeast Light checked with the dead reckoning.

That at the time the course was changed at 0330 the dead reckoning position of the ship showed her to be at the entrance of the swept channel.

That at 0352, when the course was changed to 356° true, the ship was at the entrance to the second reach of the swept channel.

That a bearing was taken at this time of Southeast Light.

That shortly after this bearing a flashing white light was sighted on the port bow and cross bearings taken.

That the fix obtained indicated that the ship was approximately 4.2 miles 111° from her actual position, and about 3.9 miles to the eastward of the swept channel.

That a second fix was taken which checked approximately with a third fix obtained, and this fix indicated that the ship was to the northward and eastward of Block Island.

That this fact was immediately reported to the captain and the engines stopped and backed, and that the ship grounded at 0425.

That the fixes obtained between 0352 and the time of grounding were not checked by applying the distance run between successive fixes.

That the range finder installed for navigational purposes was not used.

That the position of the ship after 0352 was not verified by successive bearings of Block Island Southeast Light and the distance of runs between, although the light was in plain sight and had been identified.

That Point Judith Light, although reported as being in sight, was not identified nor used.

That Block Island North Reef Gas and Bell Buoy, although reported a considerable time before the grounding, was not used to check the fixes obtained.

That the navigator failed to time the flashes of the lights used.

That the navigator confused the flashing light used for obtaining fixes with the Block Island North Light, although the characteristics of the latter light are essentially different from any other light in that vicinity.

That the lights on Great Salt Pond Breakwater on the west side of Block Island can sometimes be seen across the island.

That the characteristics of these lights are not similar to those of Block Island North Light, which light was employed in plotting the ship's position.

That leadsmen were in the chains. That soundings were being taken and the sounding machine used, and that the soundings were being reported from the time of changing course at 0330.

That the captain was at the con at the time of the grounding.

The court expressed its opinion in substance as follows:

That the captain and navigator of the battleship were responsible for the grounding.

They were brought to trial by general court martial, the captain on the charge of through negligence suffering a vessel of the Navy to be stranded; the navigator on the charge of culpable inefficiency in the performance of his duties.

GROUNDING CASE NO. 2

Principal Points Involved.

- (a) Steaming on soundings in fog.
- (b) Improper use of navigational facilities as applied to a ship.
- (c) Failure to have engines and other material in proper condition for instant use when steaming in a fog on soundings.
- (d) Inaccurate navigation.

Findings and Recommendations of the Court of Inquiry.

- (1) That the ship attempted to negotiate a narrow, torturous, and dangerous channel at night in a fog at high speeds when the position of the ship was uncertain.
- (2) That the commanding officer be tried for negligence in performance of duty.

GROUNDING CASE NO. 2

In March a submarine had just finished an overhaul. She left Portsmouth, N. H., and proceeded to Newport, R. I. Her commanding officer, "A," decided to proceed by way of the Cape Cod Canal.

She proceeded on the surface under her main engines at a speed of $12\frac{1}{2}$ knots. On arrival at the canal she proceeded through.

Her navigational equipment was standard for all vessels of her type. It consisted of a gyro compass, with a repeater on the bridge, and an azimuth circle for use with the repeater.

The weather had been fair, but as the submarine was leaving the canal it was becoming overcast. The wind was from south to south by east, force 3-4. The barometer was falling.

At 1628 she left the canal and took her departure. The last accurate fix was obtained at this time, the entrance buoy close aboard to starboard. The course 218° true, was set for "Hen and Chickens Light Vessel."

The navigator, "B," was officer of the deck from 1600 until 2000.

There is no record of when the "Hen and Chickens" was sighted. At 1807 the submarine had the light vessel abeam to starboard and changed course to 266° true. She left the light vessel abeam about $\frac{1}{2}$ mile. The new course was set to take the ship close to Brenton Reef Light Vessel.

No accurate bearings of "Hen and Chickens" were taken. Those taken were not recorded. The ship's position was not plotted on the chart.

At 1843 Sakonnet Light was sighted on the starboard bow. At 1845 the course was changed to 240° true. At 1846 Sakonnet Light abeam to starboard, distant about $1\frac{1}{2}$ miles. At 1855 changed course to 266° true. No further use was made of Sakonnet Light, nor was there any further record of bearings, etc. The sheering out, or changes of course, were not reported to the captain, nor was the fact that the light had been sighted.

At about 1900 Beaver Tail Light, on Conanicut Island, was sighted three points on the starboard bow, and about 1905 Brenton Reef Light Vessel was sighted broad on the starboard bow. The captain was then called.

He came on deck at once and, at about 1920, took over the con. The navigator then went below to the chart desk and picked out the courses to be used in going up the channel to Newport Harbor. At sundown the proper lookouts had been stationed.

No fix was obtained using any of the lights in sight.

At 1915 the course was changed to 282° true. A light fog set in soon after, and at about 1920 Brenton Reef Light Vessel disappeared, as did Beaver Tail Light. At 1925, the lights were again sighted, and Brenton Reef was estimated as being distant about 3 miles. Course was changed at the same time to 315° true.

The navigator, who had been laying off the courses, returned to the bridge and advised the captain as to the courses to be steered. These courses were from the time of rounding Brenton Reef Light and were reported as follows:

After rounding the light vessel, 10° true to be held for 2 miles.

Then course 45° true until inside the harbor.

At 1932 Brenton Reef Light Vessel was abeam to starboard and the course was changed to 10° true. At 1933 the light was again abeam to starboard. At this time the submarine was steadied on the course.

The fog set in thick as the course was changed to 10°. Beaver Tail faded out of sight, as did Brenton Reef Light Vessel. The distance the light vessel was passed abeam was not accurately determined. The captain later stated that he thought that it was about 500 yards away.

Castle Hill Light should have been abeam 10 minutes after the submarine had steadied on the course 10. At 1943 it had not been sighted. The engines were stopped, but they were not shifted to maneuvering combination. Word has been passed, "All hands bring ship to anchor."

As the fog set in, the fog whistle was started. No fog signals of the light stations were heard. No tidal data had been furnished the captain.

The ship continued on under her momentum after the engines had been stopped. She then, at about 1944, grounded on an undetermined point on Conannicut Island. As soon as the engines could be shifted to motors she was backed off and anchored.

At the subsequent court of inquiry the following additional information was brought out:

"B," the navigator, stated that on the run down the speed was checked by timing the run between buoys—this, prior to entering the canal.

That the error of the repeater and the master gyro were checked while making the run through the canal, the ranges and courses being accurately known.

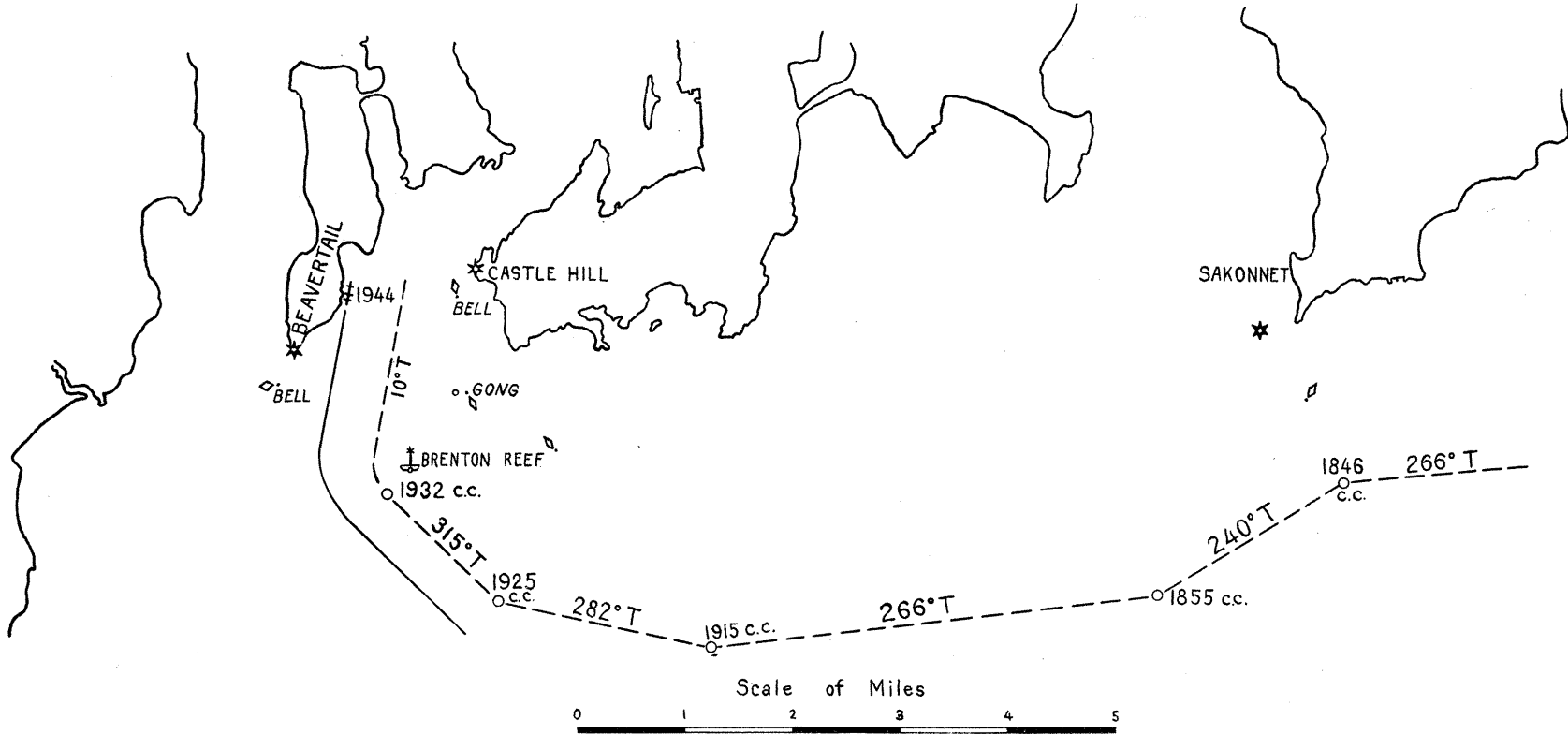


FIGURE 2

He said that he had made no allowances for set due to the tidal current. When Sakonnet Light was in sight he believed that the ship was being set in toward the beach, so he made the change of course at 1845 without telling the commanding officer.

No cross bearings were taken at any time after sighting Beaver Tail, although there was ample opportunity to take bearings and so fix the position.

The officer appointed by the court to work up the navigation found that the submarine could have been anywhere from 500 to 1,500 yards from Brenton Reef Light Vessel when it was abeam the first time.

All the officers were on deck from the time the light vessel was passed until the grounding. There was a very bright lookout, but nothing was seen from the bridge. The running lights were burning brightly. There was considerable difficulty experienced in seeing lights, due to the position of the running lights as installed on the submarine.

The court found the following facts to be established:

That the last accurate fix was obtained as the submarine was leaving the Cape Cod Canal.

That the position just prior to rounding Brenton Reef Light Vessel was approximately known and with sufficient accuracy to insure the safety of the ship.

That after rounding Brenton Reef Light Vessel the commanding officer set the course 10° true and continued at the speed of 12.5 knots. No correction was made for the tide. The tidal current was setting to the northward. It had been running flood for about two hours, and the strength of the current was about one-half knot.

That the commanding officer failed to have the motive power shifted to motors.

That a variable fog had shut in shortly before rounding Brenton Reef Light Vessel, so that thereafter navigation was difficult, the visibility was variable and uncertain, distances and bearings uncertain. No reduction of speed was made to meet the adverse conditions; nor was shift to motors made to better regulate the speed and facilitate maneuvering. The maintaining of such a high speed as 12.6 knots, under the circumstances, was not careful procedure.

The court expressed its opinion as follows:

That the commanding officer incurred serious blame, in that, as while making passage to Newport, R. I., and while conning the ship from Brenton Reef Light Vessel into Newport Harbor through a narrow, tortuous, and dangerous channel at night in a fog, the ship being under way and making a speed of about 12 knots, and well knowing that the fog was becoming thicker and that the aids

to navigation were becoming obscured and unreliable, and therefore the position of the ship more or less uncertain, neglected and failed to reduce speed of said ship and to proceed cautiously, and he, the commanding officer, through negligence, did suffer the said ship to be run upon a rock on the shore of Connanicut Island, at about 1944.

The court recommended that the commanding officer be tried by general court-martial for negligence in suffering a vessel to be run upon a rock.

GROUNDING CASE No. 3

Principal Points Involved.

- (a) Duties of the commanding officer when on soundings in thick and overcast weather.
- (b) Duties of the division commander.
- (c) Duties of the navigator when on soundings and in thick weather.

Findings of the Court of Inquiry.

1. The primary contributing causes of the grounding of the ship were early turn of the tide, thick weather, and steering for a reported unidentified light.
2. The captain was at fault in failing to request permission to change course to the eastward when in doubt.

GROUNDING CASE NO. 3

A division flagship left Portsmouth, N. H., for Newport, R. I., the forenoon of May 16 and proceeded to sea. Standard speed was 10 knots. Weather was fair, but as she proceeded to the southward it became overcast and hazy. The wind was increasing and there was every indication that there was bad weather in sight.

This ship was properly navigated from the time of her departure at the Isle of Shoals until Nauset Light was abeam to starboard at 2118, May 16. The standard speed was not changed at any time during this passage.

At 2126 the course was set, 163° true, for "Great Round Shoals Entrance Buoy" (a gas and whistle buoy). Between Nauset Light and Orleans Whistling Buoy the cruiser was set about 0.4 mile to the westward. Orleans Whistling Buoy was abeam to starboard, distant one-half mile, at 2203. This was the last accurate fix obtained.

The distance between "Orleans Buoy" and "Great Round Shoals Entrance Buoy" is 20 miles. The navigator reported to the commanding officer that they should be abeam of this last buoy by 0007.

About the time the last fix was obtained the weather came on thick and rainy. The division commander, who was on board, testified that at 2300, in his opinion, the visibility was fair.

The navigator and the captain had studied the sailing directions prior to the departure from Portsmouth, N. H. They had noted the lights and navigational aids expected to be seen, and all preparations for the passage through Nantucket Shoals, if it was decided to go that way, had been made.

In preparation for eventualities, courses to be steered in rounding Nantucket Shoals Light Vessel had been laid off on the chart. It was believed everything had been done to insure the safety of the ship.

The division commander was informed, about 2215, that the ship should reach the "Entrance Buoy" about midnight and that the weather was thickening.

At 2225 "Chatam Lights" were seen to starboard, distant about 6 miles. This was reported to the division commander. The range

of visibility decreased rapidly and these lights were soon lost sight of and no position was obtained by use of them. At 2300 the fog had so increased in thickness that the fog whistle was started. The wind had increased to force 4-5 and the sea was moderate. "Pollock Rip Blue Light Vessel" was not seen, although it was passed only $2\frac{3}{4}$ miles abeam to starboard.

Due to unfavorable weather, the captain conferred with the division commander as to the advisability of proceeding through the Sound. The result of this conference was to the effect that they would continue on until "Great Round Shoal Entrance Buoy" was picked up, and if weather conditions at that time were unfavorable, they would go around outside.

At 2300 the captain ordered soundings to be taken every 10 minutes. Leadsman were put in the chains and extra lookouts were stationed.

The soundings reported were as follows:

	Fathoms		Fathoms
2330.....	14	0010.....	7½
2340.....	12	0020.....	6
2350.....	7	0030.....	6
2000.....	8	0040.....	5

At this time the radio compass was unknown.

The navigator, in working up his dead reckoning, used no set due to tidal current. This, although the Coast Pilot is very insistent that there is a marked and variable set, under most circumstances. The time of high water, May 16, at the port of reference (Boston) for this particular stretch of the coast was 2221.

As a result of his reckoning the navigator reported to the captain that the buoy ought to be abeam at 0007. As soundings were received, they were checked with the dead reckoning position. The line given by them was or could have been to the east or to the west of the dead reckoning line or even to the southward of the supposed position.

All of these possible positions were well clear of the only danger (Orion Shoals) between Orleans Buoy and Great Round Shoals Entrance Buoy. A slight set to the westward was noticed, but it was not sufficient to put the ship onto Orion Shoals. No southwardly set was allowed for.

At 2300 the division commander came onto the bridge and checked the position and the navigation. He was fully cognizant of the ship's position as then worked up. This officer had, prior to being division commander, been in command and had navigated these waters under all kinds of weather. Among the inquiries he made was one in regard to the time of high water and set of the tidal currents. The division commander later stated that under very

similar conditions he had experienced a marked set of current to the eastward.

At 0006, Great Round Shoals Buoy not having been sighted, the speed was reduced to "One-third speed" (about 3 knots). A bright lookout was being kept for this buoy, and the lookouts had been especially cautioned to look for it. The division commander, the captain, navigator, and officer of the deck were on the bridge. All of these officers subsequently stated that the range of visibility was not less than a mile. The enlisted lookouts stated that it was very thick and that they could hardly see the length of the ship. About this time the weather became worse, the wind increased to 4-5 from the southeast, and there were heavy passing rain squalls, and it was misty and foggy.

The officer of the deck was a young ensign who wore glasses. At 0014 he reported a flashing light broad on the starboard bow. The captain and the navigator did not see this light at any time. The lookouts did not see or report this light.

At 0015 the division commander gave the following order, "Head for the light, Captain". The captain did not answer, and the order was repeated. The captain then gave the order, "Right full rudder." He instructed the officer of the deck to give him bearings of the light. The light was reported as bearing 235° true.

As the light was not seen by the captain, he instructed the officer of the deck to con the ship on. The ship was slow to swing, the weather was thickening, and the light was reported as becoming dimmer, so the captain gave the order, "Ahead two-thirds speed" (7 knots). The ship was finally steadied on the course 231° true. This was at 0024. The light, as reported, was about a point on the starboard bow. The captain maintained this course, as there was foul ground to the northward of the buoy as the light was believed to indicate.

All during this time the captain reported to the division commander that he did not see the light. However, the division commander subsequently stated that he had seen the light after the ship had started to swing.

This order of the division commander was given prior to the identification of the light. The officer of the deck was directed as soon as the light was sighted to time the flashes. The first series of flashes timed gave the interval between flashes as four seconds. This flashing was characteristic of the light on the second channel buoy. At 0032 the light was again timed and the interval between flashes was determined as being 8-9 second. This was reported to the division commander by the captain, with the comment that it was characteristic of the entrance buoy and not of No. 4, as previously believed.

At midnight hand leads were started in addition to the sounding machine. The soundings received from both sources showed 6 to 8 fathoms of water. These soundings were comparable to those that should have been encountered in the approach to No. 4 buoy.

At about 0032 the navigator, who had previously reported that he did not see the light, said that now he believed he saw it.

The division commander directed the captain to have someone other than the officer of the deck check the course, so that he, the officer of the deck, could keep his eye on the light.

At 0041 the ship grounded. No officer had positively identified the light. The course had been changed to the westward by order of the division commander. The ship's position on grounding, by dead reckoning, was latitude $41^{\circ} 23' 05''$ N., longitude $69^{\circ} 44' 30''$ W. The approximate position, as determined later, was latitude $41^{\circ} 21' 30''$ N., longitude $69^{\circ} 47' 30''$ W.

At the subsequent court of inquiry the following additional information was brought out by the testimony adduced:

The navigator was young and inexperienced and was performing his first duty as a navigator. He had made a thorough study of the charts and the sailing directions covering the territory to be traversed. He further worked up the tidal data and the set of currents to be expected.

The speed used was 9.9 knots, although the revolutions gave a speed of 10 knots. The speed, as determined by the run from Nauset Light abeam to Orleans Buoy abeam was 10 knots. This speed (10 knots) would have put Great Round Shoals Entrance Buoy abeam at 0003.

Soundings were taken at 10-minute intervals, from 2330 until the grounding at 0041 the next day.

Using these soundings, it was found that the ship's position could not be accurately determined. It could have been either to the westward or to the eastward of the supposed position, or even ahead of the position.

No position was plotted using the reported light. No bearings of any value were taken.

This reported light was seen by an officer wearing glasses and was not seen by any who searched for it using binoculars.

The time of high water at Boston, the port of reference, on the night of May 16, was 2221. The tide tables show that one hour and three minutes after high water the tidal current sets south at the rate of 1.8 knots an hour, off Pollock Rip and Great Round Shoals. At midnight it had swung to 195° true and decreased to 1.5 knots.

A study of the Pilot Volume III shows that the set and rate of the current is irregular and markedly affected by wind and sea. An

easterly wind accelerates and a westerly decreases the westerly set of the current, and vice versa.

The court's navigator worked up the course actually steered, from leaving Nauset Light abeam until the grounding, and plotted her position at intervals. As a result of the work, he determined:

That the ship grounded in approximately latitude $41^{\circ} 21' 30''$ N., longitude $69^{\circ} 47' 40''$ W.

That the ship passed between the Great Round Shoals Entrance Buoy and No. 4 Buoy at about 2353.

That using the speed of 10 knots and disregarding the tidal current, the entrance buoy should have been abeam at 0003, May 17, instead of 0007. That the ship passed about a mile and one-half to the westward of this buoy.

The court found the following facts established:

That Pollock Rip Blue Light Vessel, with a range of visibility of approximately $10\frac{1}{2}$ miles, was passed abeam distant $2\frac{3}{4}$ miles without being seen.

That the captain stated to the division commander that the ship could not have passed between the buoys without having seen one of them.

That there was no record of checking the courses steered by the gyro and steering compasses with the standard compass.

That at 0014, when the light was reported sighted by the officer of the deck, the division commander ordered the captain to head for it.

That the captain did not see the light but the division commander did. But no bearings of this light were taken subsequent to 0024.

That the captain and the navigator examined the chart after the sighting of the light, and that the captain reported to the division commander that the position of the ship was doubtful. But the captain did not take steps to eliminate this doubt.

That the division commander gave orders to the captain as to the performance of duty of the officer of the deck.

That the ship grounded at 0041.

That the track of the ship worked back passed between the two buoys and that the ship should have passed the light buoy at 2355.

That the navigator did not report to the captain that he considered the course set for the reported light as unsafe.

The court gave its opinion as follows:

That the course steered from the fix at Orleans Buoy was not a proper course to be steered under the then existing weather, as no allowance for tide or wind was made.

That as the buoy had not been sighted at 0007, the ship should have been headed to the eastward, and that at 0015 the ship should have been stopped.

That when the light was reported, its characteristics should have been determined before heading for it.

That between 0014 and 0041 the legitimate functions of the captain, the division commander, and the navigator were not performed according to the Navy Regulations.

That the primary contributing causes to the grounding of the ship were (a) the early turn of the tide to the westward, due to the wind; (b) thick weather that reduced visibility; (c) steering for a reported light when it had not been identified.

The court held that:

The division commander was at fault in that he violated the act of the regulations which outlines the duties of the division commander or other commander.

The captain was at fault in that he failed to request permission to change course to the eastward when in doubt, that he increased speed and failed to request permission to anchor when the light was not sighted at the proper time.

The navigator was at fault in that he did not properly study the sailing directions, that he did not properly fix the position of the ship on the chart, and that he did not report that he considered the change of course at the time of sighting the supposed light as dangerous.

The court recommended all three of these officers be tried by general court-martial for negligence.

As a result of this court of inquiry and the resulting general courts a great deal of confusion arose as to the responsibilities of a captain and a division commander.

The following are extracts from the letters and opinions of the Bureau of Navigation, Judge Advocate General, and Chief of Naval Operations files relative to the controversy:

The absolute authority to order the vessel under any circumstances lies in the flag officer, and he has the unquestionable right to give any orders that he sees fit. He has the right to expect and to require instant obedience. If we deny this right, imagine the position of the flag officer in battle, unable to control the position of the flagship. Regulations are made for war as well as peace. Imagine Farragut in Mobile Bay unable to control the movements of the *Hartford* because he was in pilot waters.

What becomes of the familiar "Follow the flag"? Does it mean the movements of the division are dependent upon the ideas of the

captain of the flagship? The ultimate authority must always remain in the hands of the division commander. He alone is the judge as to when that authority is to be exercised.

The Regulations do not require that a senior relieve a junior in order that a duty may be performed. The properly constituted senior has authority to direct the junior.

It may be well here to quote a passage from Winthrop's *Military Law and Precedents*, Second Edition, page 889:

"But while a military inferior may be justified in not obeying an order as being unlawful, he will always assume to do so on his own personal responsibility and at his own risk. Even where there may seem to be ample warrant for his act, he will, in justifying, commonly be at a very considerable disadvantage, the presumption being, as a rule, in favor of the legality of the order as an executive mandate, and the facts of the case and reasons for the action being often unknown in part at least to himself and in the possession only of the superior. In the great majority of cases, therefore, it is found both safer and wiser for the inferior, instead of resisting an apparently arbitrary authority, to accept the alternative of obeying even to his own detriment, thus also placing himself in the most favorable position for obtaining redress in the future. On the other hand, should injury to a third person, or damage to the United States, result from the execution of an order by a subordinate, the plea that he acted simply in obedience to the mandate of his proper superior will be favored at military law and a court-martial will almost invariably justify and protect an accused who has been exposed to prosecution by reason of his unquestioning fidelity to duty, holding the superior alone responsible."

It might be held that the division commander's order was an illegal one, to quote from *Court-Martial Order No. 37, 1915*, page 7:

"Except in a plain case of excess of authority, where at first blush it is apparent and palpable to the commonest understanding that the law is illegal, I can not but think that the law should excuse the military subordinate when acting in obedience to the order of his commander." (*McCall v. McDowell*, 15 Fed. Case, No. 8673.)

The department, continuing on this case, said:

"The Supreme Court has not yet gone so far as to subscribe to this modification of the rule that an illegal order can not be a defense to a criminal charge, but results merely in making the party giving the order an accomplice in the crime; however, the department does not hesitate in saying that, in so far as proceedings by courts-martial are concerned, a subordinate might, under certain conditions, justify illegal action by an order from superior authority, provided the order was not such that the subordinate should have

recognized its illegality as applied to the action which it commanded."

The following is quoted from the comments of the Judge Advocate General on the subsequent courts-martial:

"At 12.07 the ship arrived at the point which by reckoning should be close to the outer entrance buoy. This is the moment when the division commander is to make his decision as to whether to go through or around the shoals. The division commander, captain, and navigator are all on the bridge, all in simultaneous communication with the officer of the deck, lookouts, and leadsmen. The weather is bad, wind blowing from southeast, passing rain squalls—fog and mists—fog whistle blowing, soundings 6 to 8 fathoms.

"The division commander is now weighing the alternatives of the situation in his mind, and is about to decide as to the course of action when, at 12.14, the officer of the deck reports sighting a flashing light bearing 225°; the captain doesn't see it; the navigator doesn't see it; no lookouts report it. The division commander, feeling that this light is the one for which all have been searching, gives the order, at 12.15, 'Head for the light, Captain.'

"The captain enters no protest to the order of the division commander, but gives the necessary orders; the ship turns slowly to starboard; by order of the captain, speed is increased to two-thirds in order to expedite her swinging, and finally is steadied on 231°. Meanwhile, the captain reiterates his inability to see the light, but remains in active command, steadying the ship one-half point away from the bearing given by the division commander in order to avoid certain foul ground near Buoy No. 4, which he at that time thought the light marked. From the evidence recorded it appears that no doubt arose in the mind of any person on the bridge as to whether or not the light was on one or other of the two channel buoys; the only question which seems to have arisen in the mind of the commanding officer was as to whether or not the light actually existed.

"Though the navigator plotted the new course (231°) on the chart from the dead reckoning position at 12.15, and though he found it passed over a shoal about 2 miles distant and varied about 25° from the course of the channel, and though this discrepancy was observed by both the commanding officer and the division commander, no action was taken by any person, and the course was followed until the ——— took ground at 12.41 a. m. Later it developed that the dead reckoning position for 12.15 a. m. was an error, and that consequently the ship did not ground on the shoal across which the course from the 12.15 a. m. position passed. It did, however, develop that working back from the position of grounding, and taking into account the current published in the Coast Pilot, the actual 12.41

position was almost exactly where dead reckoning would have placed her if current had been allowed for.

"The evidence adduced in the courts-martial shows that at 12.07 the division commander had been informed by the captain that the ship might be either to the eastward or westward of the plotted course, but that he did not think it possible that she could have passed between the two buoys near the entrance to the channel. Reference to the chart shows that this report would mean that in the opinion of the commanding officer, the ship must necessarily be either to the eastward of the entrance buoys or to the northward of them. It is generally testified that visibility was estimated at from 1 to 2 miles. Under these circumstances, upon a flashing light being sighted by the officer of the deck at 12.14 to the southward and westward, the division commander ordered the captain to head for it. The flashes were timed, the captain reported to the division commander that it must be the inner of the two buoys; later reported that the flashes, being 10 seconds apart, made it the outer of the two buoys. The ship continued on the course heading for this light, apparently without further orders from the division commander or from the commanding officer, from 12.15 to 12.41, at which time she took the ground.

"No issue of fact is involved in this case; the above, in brief, sets forth the conditions which existed. The only Regulations bearing upon the issue are as follows:

"The commander in chief shall direct the course to be steered by the fleet when at sea, and is responsible for its safe conduct.

"Unless in company with a senior, he (the commanding officer) is responsible for the course steered, and he is always responsible for the safe conduct of the ship.'

"There was a difference of opinion between the division commander and the commanding officer of this ship as to the requirements of the Navy Regulations under the existing circumstances. An opinion has been expressed, after careful analysis of the Regulations, that this question of the responsibility of the flag officer is not fully covered. The Regulations charge the commanding officer with the safe conduct of a ship at all times. Was the division commander responsible for the fact that the ship was stranded in virtue of his unprotested order to head for a certain light given to the commanding officer 25 minutes previously? This question is of vast importance. The Regulations are indefinite upon the question of responsibility involved.

"It seems unquestionable that the mere presence of a flag officer on the navigating bridge examining the ship's charts when they are being used in the navigation, giving suggestions amounting perhaps to absolute orders, is prejudicial to the navigation of the ship and

involves risk to her safety. Should the commanding officer and navigator be required to incur such conduct on the part of the division commander except in cases where the flag officer assumes command? When a flag officer accepts as accurate the captain's opinion of the ship's position and lays a course which is dangerous, who, under these circumstances, is responsible?

"In view of the uncertainty and indefiniteness of the Regulations covering the above situation and in view of the danger to the efficiency of maneuvers in imposing upon a flag officer the responsibility for the safe conduct of the ship when he is not provided with assistance or facilities for detailed navigation, is he responsible?

"The court-martial decided that the division commander was responsible for the vessel of a Navy, despite the fact that the Regulations imposed upon the captain the responsibility of the safe conduct of the ship at all times.

"The court decided that the order of the division commander in question had the effect of relieving the commanding officer. It placed the entire responsibility upon the division commander.

"The division commander contended that by the Regulations, the commanding officer was responsible at all times for the safe conduct of the ship; that his order did not relieve the commanding officer of responsibility. Further that it did not place any responsibility upon the division commander, and that the Regulations are not susceptible of that interpretation.

"Notwithstanding the order of the division commander, the commanding officer should have protested. Nevertheless, the division commander could not under the circumstances of this case issue the order which he did, without assuming responsibility when his order was obeyed without further protest. The action of the division commander in issuing the order to head for the light made him jointly responsible with the commanding officer for the consequences.

"Three contentions specifically presented for consideration are:

"1. Is the commanding officer solely responsible?

"2. Is the division commander solely responsible?

"3. Are the commanding officer and the division commander jointly responsible?"

The Chief of Naval Operations, in answer to the question raised by the Judge Advocate, answered as follows:

"The commander in chief shall direct the course to be steered by the fleet when at sea and is responsible for its safe conduct. That this does not apply in the case of a single ship and to make it apply in this case would indicate inability on the part of a flag officer to understand the spirit of the Regulations governing the service. This regulation, like every other regulation, is intended as a guide for the use of technical men who are supposed to have a clear and full

understanding of the situation and will know how to interpret the spirit as well as the letter of the Regulations. It did not mean (and I can not see how it could possibly be construed to mean) that a flag officer as a passenger on board a single ship could in any way be responsible for the detailed handling of that ship, unless, in his opinion, the commanding officer of the ship was incompetent to properly discharge his duties. The interference with the steering and handling of this individual ship was, and can not be otherwise construed, a reflection on the captain of the ship in implying the necessity of the flag officer relieving the commanding officer of his responsibilities and telling him what to do. The flag officer in this case must be supposed to have understood the relation between the various grades of the service, and if he failed to appreciate the fact that he was assuming responsibility for the ship, and that he had no right under the peculiar circumstances to interfere, he should be held responsible for the consequences.

"Unless in company with a senior, he (the commanding officer) is responsible for the course steered, and he is always responsible for the safe conduct of the ship. The last clause in this sentence seems to place the responsibility clearly and definitely under all circumstances, and it is difficult to understand how it could be more plainly expressed. In addition to this, every officer in the Navy is, by virtue of his commission and the language used therein, burdened with certain responsibilities that go hand in hand with his rank and with the duties to which he is assigned, and whatever custom or various interpretations may be placed on these duties, he can not be excused for failure to properly discharge the duties that devolve upon him. It was quite as clearly the duty of the commanding officer to inform the division commander of the risk that he was running by steering the course given as it was the duty of the navigator to so inform the commanding officer, and the responsibility can not be avoided in either case. It was clearly the duty of the navigator to bring to the attention of the commanding officer the danger of steering the course indicated and to give his reasons for such advice, for this was his sole duty and he was provided with the necessary means of determining his position and of navigating his ship, and he should have had all this information ready for the use of the commanding officer. If he failed in this respect, he should be held strictly accountable for his failure. In the same manner the commanding officer, with the assistance of his navigator, the officer of the deck, the quartermaster, the leadsmen, lookouts, and the various other means at his disposal for the safe conduct of the ship, for which he, and he alone, could be held responsible, should have given the benefit of all this to the division commander

and make it clear to him that he was taking risks in directing the ship to be steered as stated.

"It is not the intention nor the desire, nor would it be advantageous to the proper development of character and officerlike conduct, to tie officers down too closely and too strictly by regulation. Their minds have been developed at the expense of the Government and they have been given every opportunity to develop their intellectual powers, and the Government expects them to utilize these means quite as much as any other, and particularly that they be deeply impressed with their responsibilities to the Government for the lives and material under their charge and to safeguard them with as much, if not more, zeal as their own personal reputation and safety."

GROUNDING CASE NO. 4

Principal Points Involved.

- (a) Tidal currents, weather, duties of the officer of the deck, navigator and the commanding officer.
- (b) Inaccurate fixing of position.
- (c) Insufficient allowance made in passing dangers.
- (d) Failure to slow, sound, and check positions on setting in of haze and fog.

Findings and Recommendations of the Court of Inquiry.

- (1) That the commanding officer, navigator and officer of the deck be tried for negligence in performance of duty.

GROUNDING CASE NO. 4

On December 24, 1918, a transport left Brest, France, with 1,500 troops and 300 wounded casualties. She proceeded at a standard speed of 20 knots for New York, N. Y.

About the evening of the 28th the weather became overcast and cloudy and continued so from that time until the morning of the 31st of December, when it cleared sufficiently for observations of the sun to be taken. During the days that it was overcast the ship was run on dead reckoning only. And the dead-reckoning position as of December 31, at 0800, when compared with the observation position, showed that the ship had encountered an easterly current.

The sights obtained on December 31 were an "a. m." sun line, a meridian altitude, and a "p. m." sun line. Using these sights, the position was plotted as of noon and as of the time of the p. m. sight; that is, 1514. The 1516 position, as worked out by the ship's navigator, was latitude $40^{\circ} 10' N.$, longitude $67^{\circ} 56' W.$ The compass error was also computed at this time on the course 288° p. s. c. and found to be $0^{\circ} 00'$.

At the time of the fix, the course 272° true, 288 p. s. c., was set. At 2000 the course was changed to 276° true 289° p. s. c. Shortly after the 1516 fix was obtained the weather again became overcast and cloudy. Wind southwest, force 3-4. Sea smooth.

The officer of the deck was instructed to lookout for Nantucket Shoals Light Vessel, particularly between 1900 to 2000. The captain and the navigator believed that the light vessel might be sighted if the ship had been set to the north on the run from the fix until 1900. At 1930, according to the ship's reckoning, the light should have been abeam. It was not sighted.

During the first part of the first watch the weather was fine, though overcast. The captain looked around about 2130, before turning in, and seeing that it was clear, made no further preparation for the night. Toward the end of the watch the visibility decreased and a haze set in. It began to drizzle, and shortly before the end of the watch to rain hard. This rain was in the nature of squalls. The visibility which had been about 10 to 12 miles was reduced to about 6 miles according to the then officer of the deck. However, he did

not consider that the weather was thick enough at any time during his watch to report it to the captain.

Before turning in, the captain wrote and sent to the officer of the deck the night orders, in substance as follows:

"At 2045 set the clocks back 32 minutes.

"Course 289° p. s. c., 276° true.

"At 0130 send the junior officer of the deck aloft with night glasses, instructed regarding the characteristics of the lights that we may sight.

"At 0230 we may sight Fire Island Light or Fire Island Lightship.

"Call the navigator when lights are sighted, and anyway not later than 0300.

"We may pick up Navesink or Ambrose Channel Lightship about 0400.

"Call the captain when lights are sighted or if fog sets in. In case of fog, man the sounding machine."

The standing orders for the officer of the deck on the transport included the following:

"Any decided change in the compasses from other comparisons, to be reported to the captain and the navigator.

"Watch the steering carefully.

"Call the captain at once whenever the horizon is not visible more than two miles.

"Call the captain in case of doubt and keep him informed of what is going on at all times."

Just prior to the transport's last departure from the United States a new steering compass had been installed, but it had not been compensated, nor had the ship been swung for deviations within the last six months. War conditions had prevented. She had not been docked in 10 months.

All necessary charts, light lists, and sailing directions were available to the officer of the deck. There was no table of deviations, but the comparisons were in a book that he had at hand.

The navigator testified that he did not make any allowance for current in working out his expected time of picking up of the Ambrose Channel Light or the sighting of other lights.

On relieving the watch at midnight the officer of the deck had the steering compass checked with the standard with the following result: Steering, 295; standard, 289. It was reported to him that the steering had checked between 293 and 295 all during the previous watch. This discrepancy was not reported to the navigator.

The watch was properly relieved and the men were on the alert and made all required reports. The lookouts were properly sta-

tioned. In compliance with the night orders, the junior officer of the deck went aloft.

At 0208 this officer reported to the officer of the deck that he had sighted a light, bearing about a point and a half on the port bow. A little later he reported that it bore about a half point on the bow.

When this light was first reported the officer of the deck looked at it and took it for the "flare-up" of a small vessel. About this time a second light was reported on the starboard bow. This light was taken for the light of a passing vessel.

The officer aloft later testified that he believed the light he first reported was Fire Island Light. However, he did not report it as such to the officer of the deck.

The officer of the deck timed the lights that he took for flares. Later, he testified that the light seemed to grow in intensity and then to diminish, and that this kept up. They seemed to be a long distance away. The interval between flashes was timed as 50 seconds. The time between the flashes of Fire Island Lightship, on this date, was 30 seconds as given by light list.

At 0214 the officer of the deck slowed to half speed. No report was made to the captain at this time. Believing that something was wrong and not being sure of things, the officer of the deck sent word, at 0218, to the captain that a light had been sighted and that he had slowed down. The messenger, although not instructed to do so, called the navigator.

The ship seemed to touch, the steering was very difficult, it required full left rudder and still its head swung slowly to starboard. The order was given to back both engines full speed. The port annunciator had jammed. The captain came onto the bridge as the ship grounded at 0220. Immediate steps were taken to refloat her, but without results. Later, however, she was refloated.

The ship stranded on the beach of Long Island at a point later determined to be 1.3 miles from Fire Island Light with the light bearing 280° true.

At the subsequent court of inquiry the following additional facts and information were brought out:

The noon position by observation, December 31, was 40° 11' N., longitude 66° 17' W.

At 1516 the position by observation was latitude 40° 05' N., longitude 68° 07' W.

By the reckoning of the navigator the ship should have passed Fire Island Light abeam to starboard about 0230, January 1, distant 15 miles, and Fire Island Lightship, distant 10 miles. The ship was being navigated on this premise.

The navigation as worked out by the court's navigator gave the following information as to positions:

D. R. noon, 31 Dec.....	40° 14.8' 66° 39'
Obs. noon.....	40° 08.9' 66° 24'
1516 obs.....	40° 11' 67° 58'
D. R. 2000.....	40° 17' 70° 07.5'
D. R. 0000 1 Jan.....	40° 16.5' 72° 05.5'
D. R. 0214.....	40° 22' 73° 03.8'

The comparison of these positions shows that the position as used by the ship was to the southward and eastward of the position of the court navigator. But at the same time the court's position would have allowed the ship to go clear if there had been no other factors. In analyzing this discrepancy it was found that using the second set of figures, the course steered, and distances made good, the transport should have passed 5 miles to the southward of the light vessel.

The 2000 position of the court's navigator was 13 miles 314° true from that of the ship's navigator.

One member of the court, who was an experienced navigator, also worked, or rather checked, the navigation of the ship and as a result of his work reported as follows:

"As a result of this work I find the position of the transport at 1516, December 31, by using the three sun lines obtained on that day to be latitude 40° 09' N., longitude 67° 55' W., and the position by reckoning at 0215, January 1, as carried on by the ship's reckoning from my 1516 position by observation, to be latitude 40° 29' N., longitude 73° 03' W. The 0214 position which I obtained bears 10¾ miles 141° true from the position in which the ship was stranded."

All the evidence was to the effect that the ship had experienced a marked and unexpected set to the north.

The sounding machine was not manned at any time and no soundings were taken to ascertain the time that the ship crossed the 100-fathom line. The officer of the deck who went on watch at midnight realized that the weather was not good, but he did not call the captain. He asked the officer whom he was relieving if he thought that the captain should be called. The testimony of this officer was to the effect that he could not make a decision and that he was afraid to bother those in authority when in doubt.

The court found the following facts established:

That the transport had been proceeding at a speed of 20 knots for 6 hours and 46 minutes prior to the grounding on the course 276° true until midnight and on the course 277° true thereafter.

That the ship's position at the moment of grounding as run up from the last fix by the sun at 1516, December 31, was 40° 30' N., 73° 03' W., or 10.75 miles 141° true from the point of grounding.

That the courses as laid by the captain and the navigator from the position as obtained by a member of the court should have carried the ship 7 miles to south of Fire Island Lightship, making no allowance for current.

That the courses as laid by the commanding officer from the assumed position at 1516 should have carried the ship 15 miles south of Fire Island Lighthouse.

That no soundings were taken on approaching the 100-fathom bank or before the grounding of the ship. The commanding officer did not check the position of the ship on 31 December.

That the weather was rainy and hazy most of the evening and night of the grounding.

That the captain's night order book directed that he be called in event of the weather becoming foggy or hazy. That neither the officer of the deck, during the evening or the mid-watch, called either the captain or the navigator, although the weather was bad.

The court expressed its opinion as follows:

That the causes leading up to the grounding were—

1. Inaccurate navigation, in that the correct position of the ship at 1516 was not determined from the data available.
2. Failure to lay the course to approach Ambrose Light Vessel on the course 295° true from the 100-fathom curve.
3. Failure of the officers of the deck to inform the commanding officer of thickening weather.
4. Failure to take soundings.
5. Responsibility for the grounding lies:
 - (a) With the commanding officer for:
 - (1) Failure to lay the proper course.
 - (2) Failure to take soundings.
 - (3) Failure to check the navigation.
 - (b) With the navigator for inaccurate navigation.
 - (c) With the officers of the deck for their failure to report thickening weather.

GROUNDING CASE NO. 5

Principal Points Involved.

- (a) Harbor navigation, use of tugs, responsibility of captain and pilot, duties of navigator, officer of the deck and the captain.

Findings and Recommendations of the Court of Inquiry.

- (1) That the grounding was due to the fact that the pilot and tug master were inexperienced.
- (2) That the commanding officer is not relieved of his responsibility for the safe conduct of a ship while a pilot or tug master is actually conning.
- (3) That the navigator must keep the commanding officer informed of the position at all times and preserve records of bearings taken and plotted.
- (4) That the commanding officer and the navigator be tried for negligence and inefficiency in the performance of duty.

GROUNDING CASE NO. 5

A battleship was anchored off Eighty-sixth Street, North River, New York. On the morning of April 30, at 0700, she got under way and stood down the river en route to the navy yard, Brooklyn. High water was at 0800; high-water slack about an hour later in the East River and about an hour and a half later in the North River off Governors Island.

She had steam for 17 knots and was proceeding at the standard speed of 12. Her draft was 32-6 forward and 32-10 aft. All preparations for mooring were made, both anchors ready for letting go and leadsmen in the chains.

The captain was at the con. The executive officer was acting as the officer of the deck, with the regular officer of the deck as his assistant in charge of the routine. The navigator was on the bridge taking bearings and plotting the position. A yard pilot was on board.

The pilot had been appointed as a result of a civil service examination. He had a master's license, but had never been in command of a ship as large as a battleship, and prior to his employment by the Navy his principal experience had been as a master of tugs around New York Harbor. Prior to this day he had acted as pilot for but three large ships.

As the ship proceeded down the river, her position was plotted at frequent intervals by the navigator. She arrived off the entrance of the East River about 0850, the course at this time being approximately 180° true.

At the entrance of the East River seven tugs were waiting, and the pilot requested the captain to slow in order to permit them to come alongside. This was done, four tugs to the starboard bow and three to the port quarter.

When the tugs were alongside the captain told the pilot to take charge and take the ship to the yard. The order was given, "Both engines ahead two-thirds speed," and the ship started to swing to the east into the East River.

The section of the East River lies between Governors Island and the Battery. The channel is very narrow, having a width of only about 480 feet, with a depth of 37 to 40 feet. For use in negotiating

it there had been a range established as follows: The cupola on St. Margaret's Hotel in line with the target on the end of Pier 10, Brooklyn. At some time before this the target had been removed in reconstructing the pier and had not been replaced. In lieu of this target the pilots were in the habit of using the peak of the roof on Pier 10. On the morning of the 30th there was considerable haze and smoke over the Brooklyn shore, practically obscuring the pier line. There were no other navigational aids.

The traffic in the channel is heavy nearly all the time—tugs, tows, large vessels, and sailing craft. To further complicate navigation, a drill barge was anchored just about on the range, engaged in drilling and blasting. The blasts were set off about twice a day, and, while actually blasting, the barge was moved into or toward the center of the channel. In passing this barge it was necessary to allow about 50 feet clearance, and because of the possibility of rocks being thrown into the channel the pilots always allowed another 50 feet.

The tidal currents are very strong. This, coupled with shallow water under the keel, makes it necessary to employ tugs. The Army engineers had issued instructions that ships passing the drill barges should proceed at not more than 4 knots.

The navigator had plotted the ship's position at frequent intervals from the time of getting under way. To assist him and in recording the bearings, received from the peloruses, he had an enlisted recorder beside him. This man kept the bearings on a pad as he received them. The position was actually plotted about every 2 to 3 minutes. In addition to the actual plots, a drafting machine was used to keep a running check on the position, the bearings coming in every 30 seconds.

The true course up the stretch of the river between Governors Island and the Battery, until clear of Dimond Reef, is 85° true.

The ship swung into the river about 0900 with the pilot in charge. Her head first went to about 80. It seemed that she was being set toward the Battery. To counteract this, the pilot directed right rudder. The order was repeated by the executive to the man at the wheel. Under this right rudder the ship's head gradually swung off to the right until she was heading 127°.

She now crossed over the deep-water range, and stood over to the south side of the channel toward Governors Island. The pilot gave the order to "Left rudder," followed by "Left full rudder." He suggested that the port engine be backed two-thirds; the executive repeated the order. The ship's head did not seem to swing, so the order was given, "Back full speed on the port engine," and the starboard was stopped. At the same time the tugs on the starboard bow

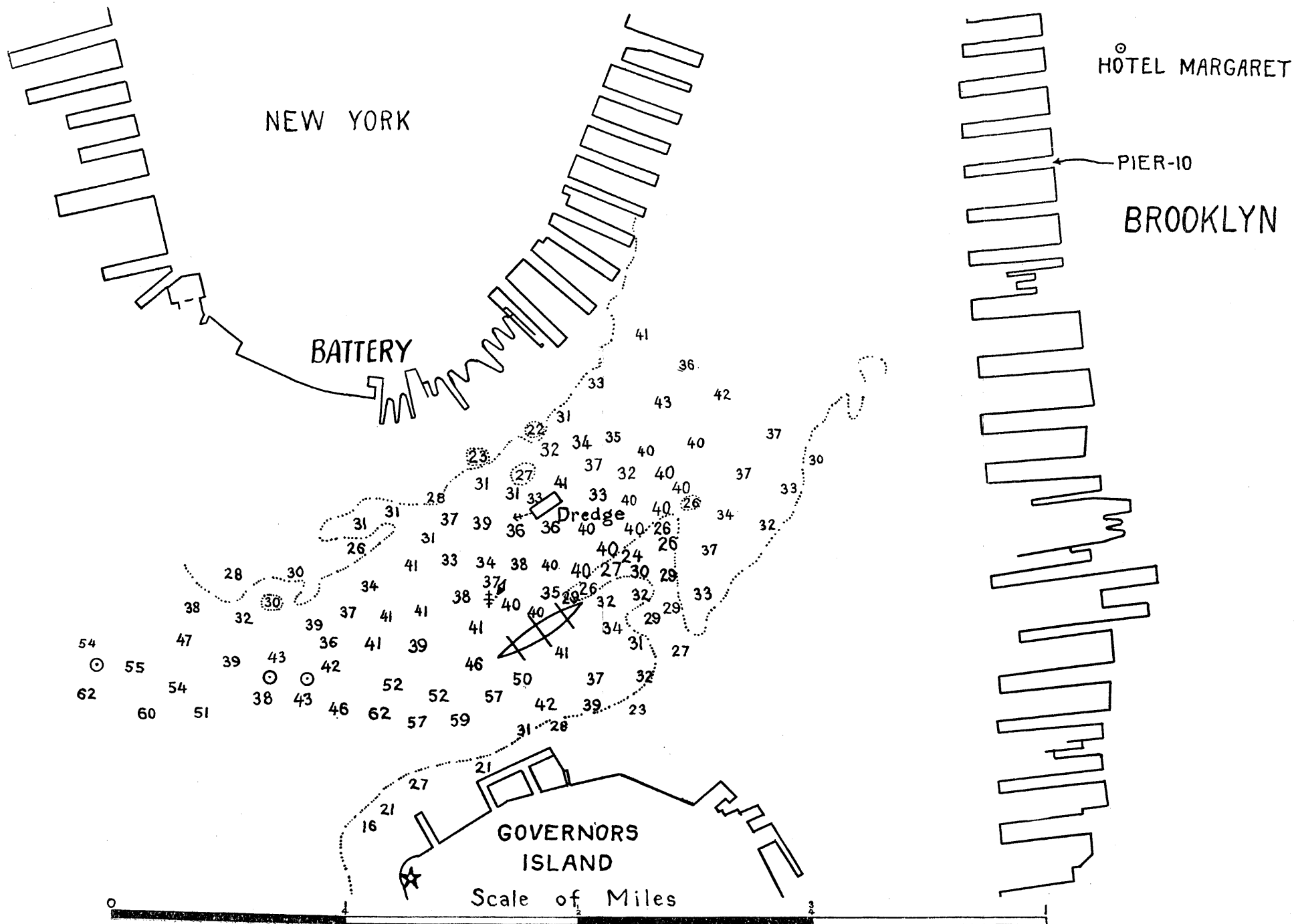


FIGURE 4

were directed by the pilot to go ahead in the attempt to shove the bow over to port and back onto the range.

This was about 0908. At approximately the same time the navigator reported that the ship was getting near the reef. This report was given three times. The executive told the navigator that attempts were being made to shove the ship's head to port.

The pilot suggested that the ship was getting very close to the reef, saying "It should be close under the starboard bow." The captain ordered the engines astern full speed. The ship stopped and then went astern about 75 feet when it was seen that she was not moving. She grounded on the southwest corner of Dimond Reef between 0910 and 0918.

At the subsequent court of inquiry and the resulting courts-martial the following information and testimony was adduced:

In the North River off Governors Island high water was about an hour later on the 30th than predicted. At 0900 the tide was running flood at the rate of about 2 knots. The tide was ebbing in the East River about 0904, and as usual the young ebb was very strong. The tide was starting to ebb alongside the docks at the Battery and this, with the set of the flood, sends the current across into the East River at this point.

The testimony of the yard pilot was to the following effect:

He had been the pilot of only about three ships of the size of a battleship and most of his experience had been in the piloting of tugs. He had been with the Navy only about six months.

He testified that the Army engineers had sent to the yard a print showing the condition of the water in the channel. That there was a drill barge anchored approximately on the range. In going to a ship the previous day he had checked up the position and casually observed its position on the morning of the 30th, while on the way from the yard to the ship in the North River.

He testified that the ship's head swung sharply to the right when nearly up to the barge. The flood tide was setting. He then suggested that the port engine be backed and directed the tugs under the starboard bow to come ahead. The ship was very difficult to handle. He had no knowledge of her exact position.

His testimony was further to the effect that the tugs secured to the ship were under his command. That the system of signals used for controlling them was not known to the officers on the ship. Also that one not familiar with the system could not handle them. Without the tugs it would have been very difficult to handle the ship. He also said that the tugs alone could not have handled the ship.

His testimony further showed that he did not seem to know exactly what his status was; that is, whether or not he was responsible, or if the captain was.

The master pilot of the yard testified in substance as follows:

Ordinarily the captain of a ship just stands around and looks, asking a few questions. It would not be fair to ask him to handle the tugs, because he could not understand them. He said that he had never seen a captain attempt to handle a ship going through this channel. The captain of the ship generally turned it over to him and let him do the handling.

In answer to the question, "If the captain of a ship alongside of which you had tugs for the purpose of bringing the ship through narrow and difficult channels interfered and questioned your directions, what would you do?", he stated, "As long as he did not change any of my orders everything would be all right. But if he changed the position of the tugs or the orders given, I think there would be trouble."

He further testified that he did not believe the captain of a ship should navigate in these contracted waters, saying, "I do not think it is safe for any man who has been out of these waters for any length of time to go from the Battery to the navy yard."

Captains of several other battleships testified that they had been brought to the yard at different times and that they had all felt the effects of the current. That while passing between the Battery and Governors Island the ship was very sluggish in her movements and often had a tendency to take rank sheers. That at all times it was very difficult because of the continual or nearly continual passing of tugs and tows. In fact, at most times the tugs and tows did not give way even when the large vessel had the right of way and it was always a question as to whether the ship would have to swing clear or hit the tow. That the presence of the drill barge or any other obstruction would have the tendency to so narrow the usable channel as to make it more dangerous.

A pilot of the New York Pilot Association, who had had 38 years' piloting on the river, was qualified as an expert witness. Among the many ships that he had piloted were the *Berengaria*, the *Olympic*, the *Majestic*, the *Mauretania*, etc. His testimony relative to tidal conditions in this vicinity and to the custom of pilots was in substance as follows:

In piloting a battleship, or any other ship, a pilot should be absolutely responsible for his orders, and they should be obeyed promptly. He said:

"I consider that the channel between Dimond Reef and Manhattan Island shore is safe under certain tidal conditions. At other times it is not at all safe. The channel, too, is narrow and fairly deep, but it is not a clear channel. This is due partly at the present to the blasting and dredging operations being carried on.

"The currents in this channel are very strong, running sometimes as high as 3 knots an hour. Their action is very different at different stages of the tide. During the first part of the tide, the young ebb making out, there is a body of water coming down from the top and it seems especially strong at the edge of Dimond Reef. There is an undercurrent hard to fathom out with a ship.

"I found, in several instances, that the current seems to hit that bank of rock resulting in a twisting of some manner or other. I have not been able to find out the cause. In digging this new channel there is a wall of rock on the south side and there is a top current running over the top of the rocks and an underneath current which hits the walls of the rocks and rebounds, and I consider it will always be a dangerous spot until they remove that wall of rocks. If those rocks were visible, there is not a master of a vessel that would allow his ship to go through.

"There are certain stages of the flood tide where it is perfectly safe for a ship to navigate. The tide is sweeping away from the rocks and you can go through with safety. It is not safe for a vessel to make the passage on an ebb tide, particularly a vessel similar to a battleship.

"At about 0900, on April 30, the young tide was breaking out and it is not safe for a ship to enter the channel at this time."

The pilot was asked to give hydrographic conditions as best he knew them at the time of the accident which he did, as follows:

"The blasted area is on the northern side of the deep-water channel and should be avoided in navigation, because you never can tell how much water there is. The Army engineers issue weekly a document showing the depth of water in the blasting area. We have found that these rocks in blasting are thrown as much as 100 feet to one side of the blast, and as the area in which they are blasting is directly on the deep-water range it is essential that a ship should stay at least 100 feet to the southward of the range when making the transit.

"The navigational chart issued just prior to the accident showed 36 to 40 feet on the deep-water range. The documents issued by the Army engineers just prior to and just after the accident shows that the depth of the water was from 25 to 40 feet along the range. Ordinarily the water would have been deep enough, but as it was, with the blasting, there were 25-foot spots. Subsequent to the accident a chart was issued showing that the depths as shown on the chart were subject to correction and could not be relied upon."

The pilot was asked if a ship the size of a battleship could maintain a compass course through the channel. His answer was that any course set would have to allow for the set of the tide, and you

would have to allow 10 or 15 degrees to compensate for the tide sweeping you down.

He said, "I do not consider that it is practicable for a ship to go through on a compass course or if so the course will be 10 to 15 degrees from the course made good."

From an analysis of the testimony of the pilot who was on board the battleship it would seem that he did not fully understand who was the responsible party or who was in charge of the ship. The captain, in his testimony before the court of inquiry and in the subsequent general court-martial, testified as follows:

"Swinging in the approach to Dimond Reef Passage at about 0904 the ship did not answer promptly and the pilot gave orders to push the bow to port. The navigator at this time was plotting positions on this chart and I was generally familiar with those positions. I noted that we were being set to the southward of the range by the position of the drill boat, which was on the north of the range. I was unable to identify the marks which designate the so-called deep-water range.

"Efforts were being made continuously by the pilot to swing the bow to port and changes of engine speed and direction had been made by his orders. Although the ship was being set to the right, I did not anticipate any trouble getting back on the range, as the pilot had not indicated that he would be unable to enter with the numerous tugs he had alongside. About 0908 the executive officer reported, 'We are getting pretty close to that reef.' I immediately rang full speed astern on the port engine, which at the time was backing two-thirds. On the starboard engine, which was stopped at that time, I also rang full speed astern. At the same time the tugs which were under the starboard bow and the three on the port quarter were endeavoring to swing the ship into the channel. I watched very carefully to see if there was any movement of the ship's head. I did not note any movement of the ship's head nor any appreciable movement of the ground as indicated by natural ranges on shore, principally vertical marks on Governors Island. There had been no shock or sudden jar to indicate the ship had gone aground, but I came to the conclusion that we were either aground or very close to being aground and I endeavored to get the ship afloat."

At the court of inquiry the navigator was unable to produce the sheets of paper on which bearings had been taken while proceeding from the anchorage off Eighty-sixth Street until the time of the grounding. And the chart used in navigating on the morning of the grounding was continued in use from that time until the ship was floated, with the result that the necessary bearings and plotted positions were erased or so obliterated as to be unusable.

The pilot was asked to describe the current of high-water slack at Dimond Reef and for a distance of 1,200 yards west of the center of the reef. Answer: "The tide sweeping down from along the docks on the ebb breaks through across to Governors Island; that is, the young ebb. There was a flood current sweeping up toward the Battery about 600 yards west of the station. The current at about 1,200 yards from the station would be running about 8° true and very strong. The undercurrents and the surface currents in the East River work very close together. We have only four minutes most of the time, sometimes eight minutes, of a change from flood to an ebb tide.

"The flood tide strikes the Battery, sweeps toward the East River, then toward Governors Island; strikes the Battery and then to the eastward and across the young tide coming down. The best water in the channel is right up against the reef, and is about 400 feet from the range line. The current was running approximately $1\frac{1}{2}$ to 2 knots at the time the battleship attempted to make the passage.

"In my opinion," the pilot stated, "the cause of the grounding was that the ebb tide caught the port bow, the flood tide struck the starboard quarter, the ship sheered a point or so, and this caused the grounding. She was only 75 or 50 feet from the channel when she grounded. It only takes a sweep of a point of 10° or so to cause grounding. As I say, ships of that class navigate that channel only with the flood tide. The North River high-water slack was at 0100 on April 30. Under all the circumstances the bow of the ship was in the ebb of the East River and the stern in the flood of the North River."

In answering questions relative to the authority of a pilot, this pilot made the following statements:

"The general relationship between a pilot and a captain of a ship with respect to command and authority is that the pilot is placed wholly in command when the captain turns the ship over to him. The pilot is in charge of the ship. It may be that he takes over in the dock to take her out or in the stream. When he comes aboard he assumes command right away. Some captains like to dock their ships. At most times, however, the pilot does it. The board of underwriters requires us to take charge of the ship, and if our work is interfered with, we are ordered to restore the ship to the captain and leave the bridge."

The following question was put to the pilot: "Do you think it perfectly safe for a seagoing officer unfamiliar with the conditions to take a ship through the channel?" Answer: "I do not think so. I am sure if he could see that reef that he would never allow his vessel to pass it on the strength of a young tide. To me it is a trap—nothing more than a bunch of rocks. It should be removed."

The court of inquiry found the following facts established:

(1) That the battleship grounded on the southwest side of Dimond Reef in the East River, N. Y., some time between 0910 and 0918, on April 30. She was damaged to the extent of about \$50,000.

(2) That on account of the variable currents in the East River, the narrowness of Dimond Reef Channel, and the great amount of local traffic that prohibits the use of speed that would be required to steer under the ship's own engines, it was necessary to use tugs to assist the ship to go through this passage.

(3) That after turning into the East River, about 0850, the first tugs were brought under the starboard bow by the pilots. From this point the battleship, maneuvering under her own power and assisted by the tugs, was handled by the navy yard pilot.

(4) That there was nothing out of the ordinary in the handling of the ship.

(5) That shortly after this time the ship began to feel the effects of the cross currents at the mouth of the East River and the pilot attempted to bring the ship's head to the left. He ordered full left rudder and used the tugs on the starboard bow and on the port quarter.

(6) That at 0907 the engines were used to help throw the bow to the left, the port engine being stopped and backed two-thirds at that time. At 0908 the starboard engine stopped. At 0909 the port engine backed full speed. At 0910 the starboard engine backed at full speed.

(7) That the captain testified that at this time all engines were backing full speed in order to reduce the speed that the ship was making in the direction of the reef. It was realized at that time that the ship was near the reef, and in case she would ground, effort was made to have stern-board on, or as little way on as possible. "At that time the ship was practically dead in the water and efforts were continued to push her head to port and lay her parallel with the direction of the reef." "About this time, the navigator informed the captain that the bow was fairly close to Dimond Reef."

(8) That the navigation and ship handling were in accordance with Regulations in so far as preparations for coming to anchor and navigational methods used were concerned.

(9) That the record of bearings on objects to fix the ship's position was made on loose sheets of paper that were lost.

(10) That the chart on which the ship was navigated up to the time of grounding was continued in use throughout the following day in the operation of getting off and coming to an anchorage. The positions plotted prior to grounding were so much obliterated or erased that it was impossible for the court to reconstruct the track of the ship prior to grounding.

(11) That there were two positions in the East River, prior to grounding, on the chart, but no time has been preserved for this or any other plots in the East River.

(12) That the pilot endeavored to bring the ship through the channel on a range defined by the middle tower of the Hotel Margaret in Brooklyn and the peak of the roof on the outer end of Pier 10. This range is described as "Deep Water Range."

(13) That the battleship approached Dimond Reef Channel on the end of the high tide before the turn to ebb tide with the current tending to north and east very nearly at slack water.

(14) That there were navigational difficulties out of the ordinary in the channel.

(15) That there were poor visibility, much shipping and cross currents.

(16) That the captain of the battleship was given no choice as to when he would pass through the channel.

(17) That the universal custom in the Navy and the Merchant Marine is for the captain to turn the control of the ship's movements over to the pilot when the ship arrives in local waters best known to the pilot.

(18) That the navigator informed the captain and pilot just prior to grounding that the bow was fairly close to Dimond Reef and this danger was not realized until one to two minutes previous to striking.

The court of inquiry expressed its opinion as follows:

(1) That all precautions as laid down in the laws and regulations of the Navy for the safe navigation of United States vessels were being carried out.

(2) That the grounding of the battleship was directly due to the fact that the pilot and tug master were inexperienced with and therefore incompetent to handle vessels of the size and type of a battleship under the conditions which obtained.

(3) That the commanding officer of the battleship had every reason to believe that the pilot and tug master were efficient, being employed as pilot and tug master by the Navy and having been sent by competent authority.

(4) That it was customary, and necessarily so, for the pilot and tug master to have entire charge of tugs used in assisting vessels through the channel to the dock at the navy yard.

(5) That in view of the foregoing the commanding officer was entirely justified in turning the handling of the ship over to the pilot upon approaching the channel between the Battery and Governors Island, at which point the assisting tugs came alongside.

(6) That while the presence on board of the pilot and the turning of the ship over to him in no way relieved the commanding officer of his responsibility under the Regulations for the safe conduct of the ship, still, under the circumstances, with the pilot and tug master on board, with seven tugs, with the control of which he was not familiar, assisting the ship, and in the restricted and unbuoyed channel, the erratic currents therein and the confusion of traffic, the same culpability can not attach to the commanding officer as would be the case under the normal employment of a pilot. Nevertheless, there appears to be a certain amount of inefficiency in obtaining and using data in fixing the ship's position just prior to grounding, for which the commanding officer is to a more or less degree ultimately responsible.

(7) That the navigator neglected to inform the commanding officer that the ship was running into danger and to advise him of the safe course to be steered in sufficient time in advance of the grounding to enable the captain to take measures to avoid grounding on Dimond Reef.

(8) That the navigator was culpable in that he neglected to preserve the records of bearings and of plotted positions of the ship prior to grounding.

The court of inquiry recommended that the commanding officer and the navigator be brought to trial for negligence and inefficiency in suffering a vessel of the Navy to be hazarded and run upon rocks.

In certain recent cases the department made the following remarks in regard to the responsibilities of commanding officers and navigators:

"The bureau is of the opinion that no deduction can be made from the evidence which would nullify the long-established regulation of the Navy that a commanding officer is always responsible for the safe conduct of a ship."

The Secretary of the Navy made the following statement:

"A vital element in the equipment of an officer for command is a complete appreciation on his part of his full personal responsibility for the safety of the ship at all times."

In another case the Judge Advocate General made the following remarks:

"The gist of the specification under which the accused was tried was that as navigator he failed to advise properly his commanding officer as to the safe conduct just prior to a wreck."

The Bureau of Navigation concurred with the statement of the Judge Advocate made in the following remarks, in part:

"There is no evidence to show he was so relieved, and therefore the responsibility was his to accurately navigate the ship and advise the commanding officer as to the ship's position."

The bureau is of the opinion "That no matter how much of the actual navigation of any ship is done by the commanding officer, the navigator is in nowise relieved of his responsibilities in the premises, and as a navigator should be held fully responsible as an adviser to the commanding officer as to the accurate positions of the ship."

Of interest in regard to the authority of the pilot and the responsibility of the captain, the following paragraph of Marsden's *Collisions at Sea*, Eighth Edition, is quoted:

"It is possible that the doctrine of the Admiralty Court with reference to the supreme authority of the pilot may have originated in antiquated regulations for the Royal Navy, which provide that the pilot is to 'have the sole charge and command of the ship'; that he is to give the orders for navigating the ship, and that the captain is to see them carried out. This view of the pilot's position and duties probably dates from the days when the navigating and fighting branches of the service were entirely distinct. Later regulations (of 1808 to 1899) are very different. Article 1007 of the Regulations of 1899 provides that the captain and navigating officer are to 'attend particularly to his (the pilot's) conduct,' and that if he is 'not qualified to conduct the ship,' or runs her into danger, he is to be 'removed from charge'; 'and if the ship should be at any time damaged through the ignorance or negligence of the pilot, when a common degree of attention on the part of the captain and navigating officer would have prevented the disaster, those officers will be deemed to have neglected their duty.' Under this article it is held by the Lords of the Admiralty that, if a ship gets ashore on a well-known sand in consequence of an obviously wrong course given by the pilot, the captain is responsible. Thus, in the case of the *Vigilant*, which got ashore on the Gunfleet Sand on the 22d of October, 1862, with a pilot on board, the captain and the master were severely censured by the Lords of the Admiralty."

The responsibility of the master is that he is bound to exercise a vigilant supervision and that though the advice of the pilot is of the

greatest value, the master is not bound to follow it explicitly if it appears, in his deliberate judgment, to involve danger to the ship.

In the case of *Jure v. United States Fruit Co.* (6 Fed. 2d, p. 6), the court held, among other things, as follows:

“The authority of the master of a vessel is not in complete abeyance while a pilot, who is required by law to be accepted, is in discharge of his functions.” *The China* (7 Wall. 53).

With reference to such a situation, the following was said in the opinion in that case:

“It is the duty of the master to interfere in cases of the pilot’s intoxication or manifest incapacity in cases of danger which he does not foresee, and in all cases of great necessity. The master has the same power to displace the pilot that he has to remove any subordinate officer of the vessel. He may exercise it, or not, according to his discretion.”

GROUNDING CASE NO. 6

Principal Points Involved.

- (a) Identification of land.
- (b) Speed and course in fog.
- (c) Laying off the course to pass danger.

Findings and Recommendations of the Court of Inquiry.

- (1) That the officer of the deck failed to properly identify the land when sighted.
- (2) That the captain and the navigator, when thick weather started to set in, failed to accurately fix the ships' position.
- (3) That the commanding officer failed to slow down upon fog setting in.
- (4) That the commanding officer and the navigator be tried for negligence in the performance of duty.

GROUNDING CASE NO. 6

A destroyer left the navy yard, Mare Island, Calif., on July 21, 1920, and proceeded down the California coast en route to San Pedro. The weather was clear; wind, light airs; sea, smooth; standard speed, 15 knots. She was proceeding singly. Up until the time of passing Point Arguella the navigation was accurate.

On the evening of the 21st the captain wrote his night orders and sent them to the bridge. In substance they were as follows:

"21 July, course 31° true, speed 15. Point Arguella should be sighted about 1.30 a. m. Two flashes every $7\frac{1}{2}$ seconds. Point Conception about 0215, white flashes every 30 seconds. Watch the steering. Course will be changed when Arguella is abeam. Call me at 0200 if the light has not been sighted."

No orders were included as to the course to be steered after Point Arguella was abeam.

At 0315, July 22, the destroyer passed Point Conception Light abeam to port bearing 35° true, distant $3\frac{1}{4}$ miles, as determined by a bow and beam bearing of the light.

The course, 111° true, was set to pass the whistle buoy 1 "A" off the east end of Anacapa Island, abeam to starboard, distant 1 mile. The passage between Anacapa Island and the mainland is about 10 miles wide.

After the course had been set the captain and the navigator, who were on the bridge, went below. The captain left instructions that he be called not later than 0700, before if it were necessary, and if any lights were seen or the weather changed for the worse. The navigator had left instructions that he be called at 0630.

At 0445 the officer of the deck reported to the captain that Santa Cruz Island had been sighted on the starboard bow. He took no bearing of this land nor did he plot the position. No position had been plotted subsequent to the last change of course. The weather was clear and calm.

At about 0630 the officer of the deck sent word to the captain and the navigator that there were indications of fog ahead and that the weather was becoming a little bit hazy. The navigator came on the bridge about 0640.

About 0710 it was seen that the ship was running into a fog bank. The captain ordered the extra lookouts to be stationed one on each wing of the bridge and one sent to the eyes. The foghorn was started. Speed was not reduced. The captain remained on the bridge and was exercising a very sharp lookout. The deviation table in use had been checked by observation on the courses being steered the previous day. The compass error was known. Both the captain and the navigator had studied the sailing directions and were familiar with conditions to be expected.

At about 0715 a position was plotted, using the following bearings: West end of Middle Anacapa Island bearing 189° , Cavern Point on Santa Cruz bearing 273° . As plotted, the position was exactly on the dead-reckoning course. No other bearings were taken.

At 0719 the fog set in very thick. The lookouts, who had been already stationed, were cautioned and directed to keep a bright lookout for whistle buoy 1 "A."

The captain stationed himself in the starboard side of the bridge, looking for the whistle buoy that was expected to be seen in a very short time. Suddenly he saw a dark shadow to starboard and heard the squealing of sea gulls. He ordered "Left full rudder, back full speed both engines." As he later said, he realized that land was close aboard. These orders were given at about 0721. The ship's head swung about 30° to the left, and at 0723 she grounded. Later the fog lifted and it was found that she had grounded on the eastern end of Eastern Anacapa Island about, 800 yards, 264° true, from the whistle buoy.

At the subsequent court of inquiry the following additional facts relative to the grounding were brought out:

On the day previous to the grounding the compass errors had been taken on practically all courses steered or that were expected to be steered in making the run from San Francisco to San Pedro. The navigator stated that he was not absolutely certain that the points he took in plotting his bearing were Cavern Point or the west tangent.

He stated that according to the sailing directions there was no northerly or southerly current to be expected at the time that the ship was running between Point Conception and Anacapa Island.

The testimony of the captain at the subsequent court-martial was in substance that, after his arrival on deck about 0700, he saw that the weather was getting a little bit thick ahead, so he went up to the bridge, and seeing there was fair visibility to the southward and astern, he did not worry. The eastern point of Santa Cruz Island was not sighted and he could make out Western Anacapa Island.

He said: "I took bearings of a tangent on Santa Cruz Island and on the western end of Middle Anacapa Island, which had come in sight. I could distinctly see water between the western end of Anacapa Island. I plotted the position. The position, as I made it out and as it was made out by the navigator, was very close to the predicted position, and although the fog had shut in thick at this time I did not expect any danger. The reason I laid the course for the mile abeam of Anacapa was that it was the most direct and it was one that I considered safe in clear weather in the daytime."

In reply to the question, "How do you account for the grounding?" he answered, "After the ship grounded I took bearing 273° true and laid it so as to strike San Pedro Point, instead of the tangent on Cavern Point on Santa Cruz Island, and this with the other bearing of the west tangent on Middle Anacapa Island gave a position from which, following the course steered, we would have arrived very closely at the point where the ship grounded."

He did not, however, acknowledge that he was mistaken in his recognition of the point. His testimony as to why he had not reduced speed when he ran into thick weather was, "We were in fog for approximately five minutes and were relying on the two positions, which were believed to be correct. Following the usual practice of the ship, I should have slowed to 10 knots within several minutes after the fog had not lifted."

The testimony of the other officers and men involved was to the effect that all precautions were taken and that every one was on the lookout.

The navigator said in substance: "I reached the bridge sometime between 0630 and 0640. At the time the eastern end of Santa Cruz bore slightly forward of the starboard beam. I took some bearings, but did not plot them on the chart, as I could not distinguish any points with enough accuracy to justify doing so. At about 0650 the captain came on the bridge, and in a few minutes was able to take bearings of the western end of Middle Anacapa Island and Cavern Point on Santa Cruz Island. He laid these bearings off on the chart and they checked up on the course. He did not plot these bearings, as he was leaving all the actual navigational plotting to me. I did not take these bearings, so did not plot them, as I was not in the chart house when the captain laid them down. Shortly after this I secured bearings of the same point, namely, the western end of Middle Anacapa Island and Cavern Point on Santa Cruz Island and plotted them on the chart. Cavern Point bore 273° true and the western end of Middle Anacapa Island bore 189° true. These bearings gave a plot exactly on the course we were steering (dead reckoning). After plotting these bearings I returned to the bridge. Within a minute or two the fog shut down thick."

The court found the following facts to be established:

That the U. S. S. ———, bound from San Francisco to San Pedro, passed Point Conception Light at about 0315, July 22, 1920, distant $3\frac{3}{4}$ miles, with the light bearing 35° true, and at that time changed course to 111° true. Standard speed, 15 knots.

This speed was maintained until about 0721, approximately two minutes before the vessel went aground on Eastern Anacapa Island.

The weather was clear and fine, with light sea and sea smooth from 0315 to 0650, at which time the commanding officer was called and informed that there was fog ahead.

The course 111° true was laid out correctly on the chart to pass Anacapa Island Buoy 1 mile on the starboard beam.

That the captain was called about 0615 and the fact that there was fog ahead was reported to him. He immediately came on the bridge and remained there until the ship grounded.

That at 0708 the captain took cross bearings, using what he believed to be a tangent on Santa Cruz and a tangent in the western end of Middle Anacapa Island, and that he noted this position on the chart as accurately checking his dead reckoning course and speed. But he did not accurately plot and leave a record of it on the chart.

That at 0715 both the captain and the navigator independently took bearings and independently plotted these bearings on the chart, and that the two positions so plotted coincided and corresponded accurately with the estimated dead reckoning position.

That there were no other bearings taken after 0315 and until 0723, when the ship grounded, and that Eastern Anacapa Island was not visible at any time until within approximately two minutes of the time the destroyer grounded. That the destroyer entered heavy fog at 0719. The fog whistle was sounded, but she maintained her course and speed until proximity of land was expected and the rudder was put hard left and the engines reversed. That the ship grounded at 0723, having swung true about 30° , stuck and remained about 400 yards west of the light on the eastern end of Anacapa Island.

The court expressed an opinion that the commanding officer was negligent in the performance of his duty in setting a course for a period of about four hours to pass only one mile to the northward of Anacapa Island whistle buoy 1 "A," when he well knew that the channel was clear and safe for a distance of approximately 10 miles to the northward; knew that the velocity and directions of the current were uncertain in the vicinity of Anacapa Island, and that the bottom in that vicinity was such that soundings were not safe if thick or foggy weather set in. That he was negligent in not taking

bearings of objects on shore to check up his course between 0445 and 0708, although land was in sight continuously during this period.

That the navigator was negligent in not advising the commanding officer to set a safe course to pass Anacapa Island Buoy, in placing undue reliance on tangent bearings taken under weather conditions obtaining in the vicinity of Anacapa Island at about 0715, July 22, and for failure to check up the course in speed frequently by bearings of visible objects while approaching the eastern end of Santa Barbara Channel.

The court recommended that the commanding officer and the navigator be brought to trial for negligence in performance of duty and suffering a vessel of the Navy to be stranded.

GROUNDING CASE NO. 7

Principal Points Involved.

- (a) Coasting in a fog.
- (b) Use of radio compass.
- (c) Soundings.
- (d) Duties of the officer of the deck when in doubt and in thick weather.

Findings and Recommendations of the Court of Inquiry.

- (1) That the night orders were not completely written by the commanding officer.
- (2) That the officer of the deck failed to call the captain and the navigator when in doubt.
- (3) That the captain and the navigator be tried for negligence in the performance of duty.

GROUNDING CASE NO. 7

A destroyer left San Francisco Harbor at 0048, July 2, en route to Puget Sound. Her orders were to proceed to a point 37 miles northwest of Point Reyes as a plane guard. Standard speed was 12 knots, the weather was fair. She passed out through the Golden Gate, passing Bonita Point abeam to starboard, distant 0.4 mile, at 0121. The light bore 13° true. The course 283° was set. At 0200 the course was changed to 288° true.

The captain, a little prior to this, left the bridge. He left instructions with the officer of the deck that frequent radio compass bearings should be taken. The night orders were written up by the captain, giving the regular details as to the procedure, course to be steered, speed, etc. In writing up these orders the captain left a blank space for the course to be steered after rounding Point Reyes. He gave the navigating officer instructions to fill up this blank when the course had been set.

At 0210 a radio compass bearing using the San Francisco entrance group was taken. The bearings were reported as follows: Point Montara, 334.5 ; Farallon Island, 61.5 ; Point Reyes, 13.1 .

About 0215 a thick fog set in and fog signals were started. The captain and the navigator were on the bridge at this time. The captain and the navigator then went below. No soundings were taken. At 0245 another radio compass bearing was taken as follows: Point Montara, 232 ; Farallon Island, 23.5 ; Point Reyes, 151 .

At 0257 the fog lifted. The fog signals were stopped. About the same time the Point Reyes diaphone signal was heard. The navigator was on the bridge at this time. The bearing of this fog signal was about broad on the starboard bow. The fog, however, did not lift sufficiently for the light to be seen. The fog set in again at about 0315. This fact was not reported to the commanding officer by the officer of the deck.

At 0328, on the advice of the navigator, the course was changed to 298° true. From this point on the navigator took over the con, and, using the sound of the diaphone, he took a bow-and-beam bearing of Point Reyes, and at 0340 he judged that Point Reyes was abeam to starboard. At 0345 he directed that the course be changed to 333°

true. This change was not reported to the commanding officer. No soundings were taken at any time during the midwatch.

At 0400 an ensign came on the bridge as the relief of the officer of the deck. He was informed of the course being steered, the state of the weather, and the supposed position of the ship. He was also informed as to the circumstances surrounding the passing of Point Reyes Light.

The officer who was being relieved told the oncoming officer of the deck that he would report to the captain the fact that Point Reyes was abeam and that the course had been changed when he went below, after being relieved.

The navigator, as soon as the course 333° true had been set, went below. The fog was very thick and continued so. The lookouts were properly posted and the fog signal was being sounded.

The officer of the deck directed that a radio compass bearing be taken about 0428. The bearings received were Montara, 301.15; Farallon Island, 246. Again a radio bearing was taken at 0503, as follows: Point Montara, 322; Point Reyes, 319.5; Farallon Island, 344.

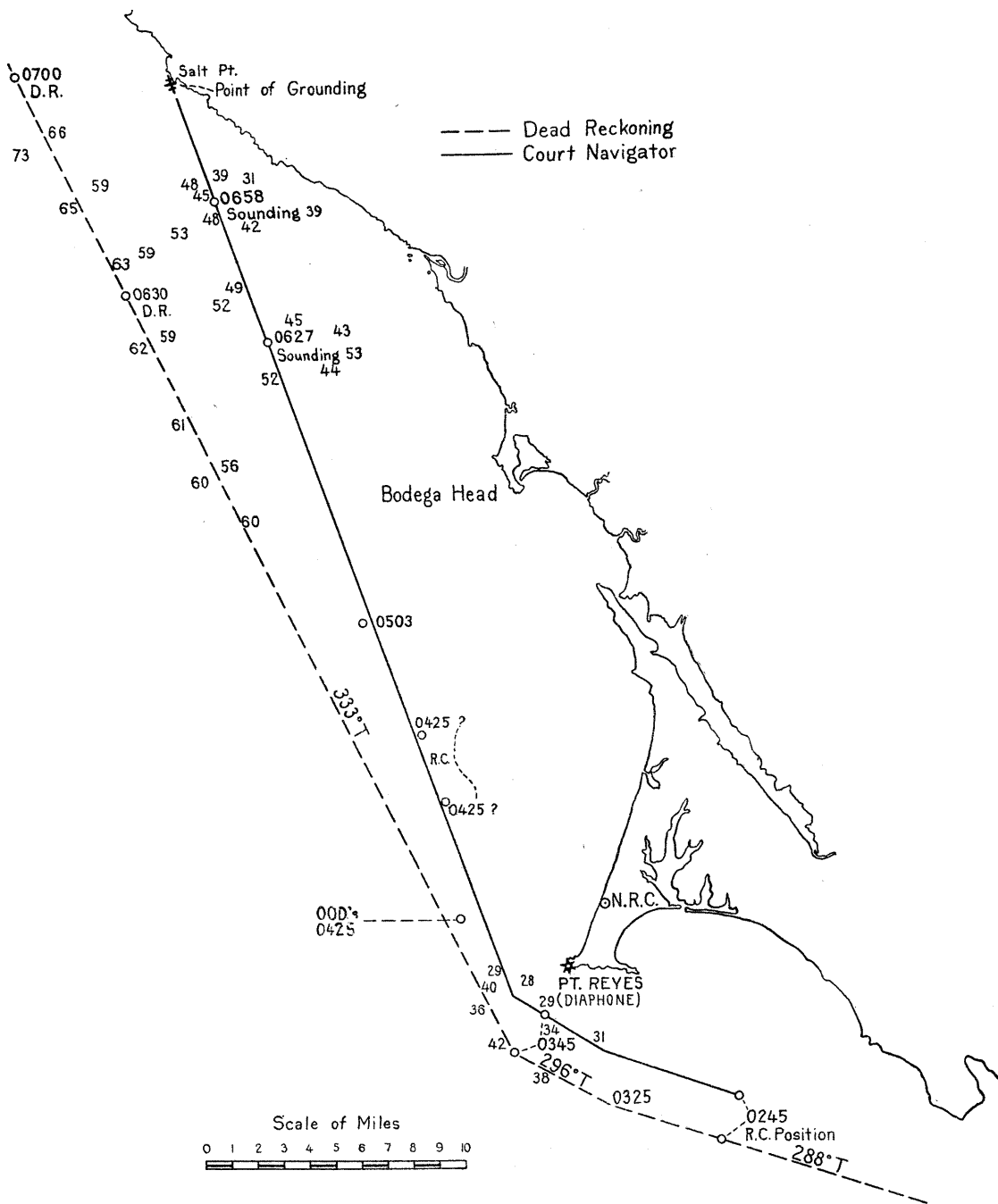
At 0628 the officer of the deck on his own initiative stopped the engines and at 0640 a sounding was taken. The depth reported was 53 fathoms, blue clay. At 0631 standard speed was resumed. At 0658 the engines were again stopped and a sounding taken with 39 fathoms, blue clay. At 0701 standard speed ahead.

None of this information, radio compass bearings received nor soundings obtained, was reported to the captain.

The officer of the deck, on receiving the 0658 sounding, notified the navigating officer of the results and at the same time directed the radio room to get a radio compass bearing.

This was about 0710. At 0722 the navigator came on the bridge and advised the officer of the deck to stop and take a sounding. A radio compass bearing was received at this time from Point Montara, as follows: Montara, 326°; Point Reyes, 331°; Farallon, 338°. The ship was practically dead in the water.

At this point the navigator advised the officer of the deck to change the course to the westward, to course 318° true. The deviation on this course was not known, so both the officer of the deck and navigator went into the emergency cabin in order to pick out the correct deviation and from that obtain the compass course. While they were inside the starboard bridge lookout sang out, "Rocks ahead." Both the officers rushed onto the bridge and the order was given, "Full speed astern, both engines, left full rudder." Before the engines could take charge and the ship be backed clear, she grounded on the rocks off what was later determined to be Salt Point.



Farallon

As soon as the order to back was given the siren and the general alarm were sounded for collision quarters. The ship, after she was clear of the rocks, headed to seaward and back to San Francisco.

At the subsequent court of inquiry the following pertinent facts were brought out:

The officer of the deck having the watch between 0400 and 0800 at no time made any report to the commanding officer concerning the weather, stopping of engines, the result of soundings, or the receipt of radio-compass bearings.

In plotting the radio bearings received, he used the charted positions of the radio-compass stations for all stations except Point Reyes. In plotting Point Reyes' bearings he used the lighthouse instead of the compass station. These two points are about 3 miles apart.

The officer detailed to work the navigation for the court of inquiry reported that he was unable to check up the tidal streams or currents. The sailing directions are not very explicit as to what current is to be expected. They are variable and irregular, both as to force and direction, their direction and force depending to a large extent upon the direction of the wind and the state of the sea. The data as furnished included the radio-compass bearings, the distance steamed, and the course steered showed that the ship grounded on rocks off Salt Point. The bearings, as received subsequent to rounding Point Reyes, showed the ship to be set in toward the beach. As plotted by the officer of the deck, these bearings showed the ship to be approximately on the dead-reckoning course.

The court of inquiry found the following facts established:

That the last definite fix obtained by the destroyer was when she passed Point Benita abeam at 0121.

That the captain set the course from this fix past Duxbury Reef Gas and Whistle Buoy, 1½ miles abeam to starboard. The ship was then on soundings.

That at 0200 the course was changed 5° to the right. Shortly thereafter the captain went below.

That prior to 0400 the compass bearing was plotted and reported to the captain.

That at 0257 Point Reyes diaphone was heard on the starboard bow and reported to the captain and the navigator.

That at about 0315 the fog, which had previously cleared slightly, set in thick.

That at about 0340 Point Reyes Light was passed abeam, the ship being on course 298° true, and although the light was not seen the diaphone was plainly audible and the ship's position was determined by an estimate in distance and bearing of the diaphone signal.

That at 0345 the course was changed to 353° true by order of the navigator, which course was steered until the grounding. This change of course had been previously approved by the captain, who directed the navigator to enter it in the night order book. This change was not reported to the captain by either the navigator or the officer of the deck. The ship was still on soundings.

That the officer of the deck, coming on at 4 o'clock, asked if the captain had been informed of the weather condition and he was told by the officer he was relieving that this would be reported when he went below.

That the subsequent radio bearings were never reported to the captain nor were the soundings.

The court gave its opinion in substance as follows:

That the commanding officer was negligent in the performance of his duties in that knowing the weather conditions as to fog; that Point Reyes Light could not be seen, though the diaphone was heard; that having directed the course 333° true after rounding the light, which course inclined to the shore line, he did not take effective steps and positive methods to be called before the ship could reach dangerous waters or that safe navigational methods were employed, which negligence was contributory to the grounding of the ship.

That the navigator was probably inefficient in the performance of his duty in that he failed to fix the position of the ship when rounding Point Reyes; in that he did not take soundings or radiocompass bearings to check the distance of the diaphone fog signal.

That the navigator was probably inefficient when at about 0717, after having received from the officer of the deck the report of the sounding of 39 fathoms, he did not recognize the position of the ship and did not immediately advise the officer of the deck a safe course to steer.

That the navigator was negligent in the performance of his duty in that he did not report to the captain the change of course after rounding Point Reyes and further that knowing the foggy conditions and the uncertain and dangerous currents in this part of the coast, and that the course of the ship inclined to the shore; and further knowing that the captain was asleep, left the bridge and went below without making provision for safe navigation of the ship.

That the officer of the deck was negligent in that he did not report radiocompass bearings received and result of the soundings, and further that he did not inform the captain when he was in doubt as to the position of the ship and that this negligence was contributory to the grounding.

The court recommended that the captain and the navigator be brought to trial for neglect in suffering a vessel of the Navy to be run upon a rock, and that the officer of the deck be tried for neglect of duty.

GROUNDING CASE NO. 8

Principal Points Involved.

- (a) Identification of fog signals.
- (b) Correct reception of verbal orders by officer of the deck relative to the course to be steered, etc.
- (c) Care in piloting courses.

Findings and Recommendations of the Court of Inquiry.

- (1) That the speed of 12 knots in a fog, in which visibility of the ship's length only was possible, is excessive.
- (2) That the officer of the deck failed to hear correctly the course by the commanding officer.
- (3) That the navigator failed to verify the course actually being steered.
- (4) That a letter of reprimand be directed to the commanding officer and the navigator for negligence in performance of duty.

GROUNDING CASE NO. 8

A cruiser was at anchor in the harbor of Swatau, China. Orders were received to proceed to Amoy, China. The captain knew the coast well, having sailed it for about three years.

The captain and navigator had a conference relative to the course to be pursued after leaving Swatau. The result of this conference was that it was decided to proceed up inside the islands, leaving White Rocks and the Lamocks on the starboard hand. The reason for not proceeding into the South China Sea and up outside was that the currents were unreliable and, at this season of the year, fogs were prevalent and land falls difficult to make. On the morning of March 19, 1912, the cruiser got under way and stood out of the harbor. The weather was foggy, with light breeze; sea calm. The fog was thick but low lying, the sun shining through overhead.

At 1010 the course was shaped to stand down the harbor clear of Sugar Loaf Island. The captain was at the con and the navigator was on the bridge. The navigator was checking the bearings and lending his aid to the captain. Standard speed was set at 12 knots. The tide was running flood at the rate of about 2 knots.

When the cruiser was abeam of the south end of Sugar Loaf Island the fog shut in thicker and speed was reduced to 6 knots. It was noticed that the tide was still running a strong flood. From this indication it was presumed that the cruiser would pass over the bar at the height of the flood.

The course, when Sugar Loaf Island was abeam, was set at 140° true. As she approached the bar the fog lifted slightly and it was ascertained that she was on the correct course. At 1100 Bill Island, on the west side of the channel, just to the southward of the bar, was sighted through the fog, broad on the starboard bow, distant about 250 yards. At 1105 the course was changed to 125° true and the speed increased to 12 knots.

When the ship got under way the lookouts were stationed as follows: One on each bow and 1 in the eyes of the ship. The leadsmen were in the chains and soundings were being taken by means of the hand lead. As soon as the cruiser passed the bar, the starboard leadsmen were taken out of the chains.

At 1110 the cruiser slowed and then stopped to permit another steamer to pass. At 1114 she went ahead at one-third speed and the course was set as south 85 east (95° true).

The fog gun on the Cape of Good Hope had been heard and recognized. A bearing of the sounding of the gun was taken as 190° true and the position plotted. This position as plotted was with Bill Island bearing 303° , the Cape of Good Hope, 190° true, and with the last-named point distant about 1.7 miles. At 1120 the speed was changed to 10 knots.

At 1154 departure was taken, with the fog gun on Cape of Good Hope bearing 253° , distant $6\frac{3}{4}$ miles. This position was a little to the northward of the dead-reckoning position. The tide was still running flood or to the northward. At this time it was decided to continue on the course South 85° East until near the White Rocks, when the course would be changed to conform to the channel.

At 1205 the captain directed the course to be changed to South 82° East. At 1218 he increased the speed to 12 knots. The speed was increased in order to minimize the effect of the tidal current. About this time the orders were given to man the sounding machine and start taking soundings at 1230. Interval between soundings, 30 minutes.

At 1230 a young ensign relieved the deck. The navigator showed him the course to be steered as they were laid off on the chart. The attention of the officer of the deck was not called to the dangers to the north or ahead.

The 1230 sounding was 13 fathoms. The 1:00 sounding was 14 fathoms. The captain then ordered soundings to be taken at more frequent intervals, the first of these soundings was at 1320 and was $14\frac{1}{2}$ fathoms. Another was taken at 1325 and was 14 fathoms.

The captain had personally laid off the course to be steered from 1308, and in marking it on the chart first marked it down as South 84 East. He then saw his mistake and changed it to North 84 East. At 1304 the captain gave the officer of the deck orders to steer the course—as the captain said at the subsequent court of inquiry, North 84 East. As the officer of the deck said, he received the order and as it was received by the quartermaster helmsman, South 84 East.

Shortly after 1308 the navigator returned to the bridge and the captain told him, "We have changed course to North 84 East. Check the course, I am going to run on this course for 15 minutes, 3 miles."

The navigator checked the course as laid down on the chart and reported to the captain that it was all right. He did not check the actual course being steered by looking at the compass.

The course was changed but the officer of the deck did not report the fact that the ship was steadied on the new course to the captain. The captain noticed this and called to the officer of the deck and

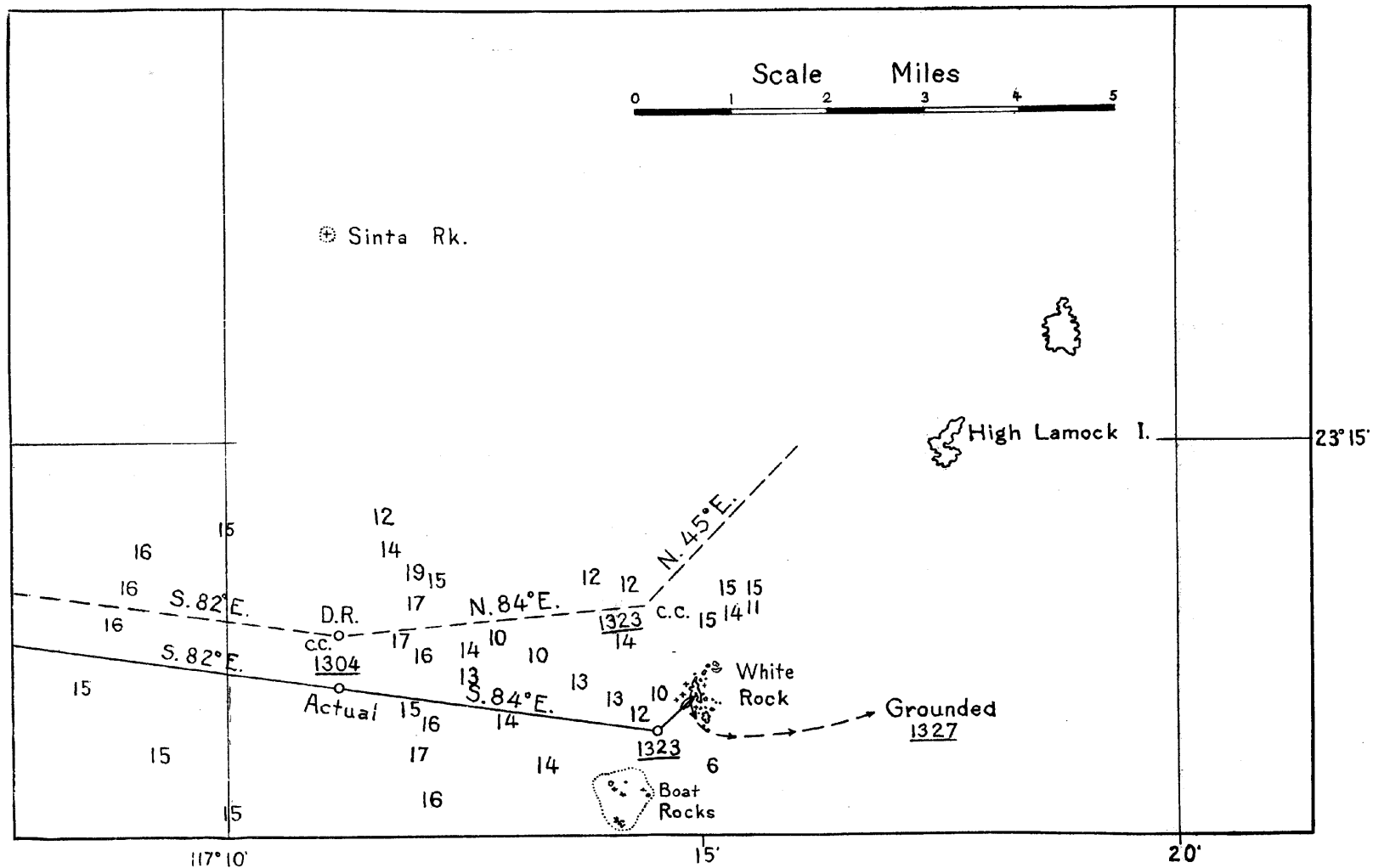


FIGURE 7

asked him why he had not reported when on the new course. The officer of the deck replied, "I did not know that I had to when you were on the bridge."

The officer of the deck then reported that the ship was on the course. His testimony was to the effect that he reported this course as South 84 East. The captain did not remember whether or not he did report it.

The necessary charts for use in going up the coast were on the bridge and in the chart desk ready for use.

At 1323 the captain gave the order to steer North 45 East. This course was parallel to the line between the White Rocks and the Lamocks. This course, from the assumed dead-reckoning position, would have carried the ship clear of all dangers.

About this time the lookout in the eyes of the ship sang out, "Land ahead." The captain saw the land at about the same time. He stated, at a later period of time, that it appeared to extend well to the starboard hand.

The captain ordered "Hard left, back full speed port engine." Land was then seen to port and ahead, even as the ship's head swung rapidly to port. "Back starboard engine full speed" was given. Rocks were seen close aboard on both hands. Emergency full speed astern was ordered. The ship was conned to the best possible advantage. As the ship lost headway under the engines backing, it came to a stop and before she got stern aboard, the tide drifted her on to the rocks. She grounded at about 1327.

She was then backed clear and turned sharply to port with her engines. She stood to the northwest for 14 minutes, when the course was shaped for Shanghai.

After losing sound of the fog gun on the Cape of Good Hope, no fog signals were heard until after the grounding, when the fog signal on the Lamocks was made out.

The position as later plotted showed that the ship grounded on the submerged rocks to the south and west of the largest of the White Rocks. It further showed that if the course of north 84 east had been steered from 1308 until 1323 the ship would have cleared all dangers.

As a result of the grounding, a court of inquiry was ordered, and the court found the following facts to be established:

That the ship grounded when headway had been lost and stern board was just about being established. That a speed of 12 knots was used in a fog of such a thickness that the visibility was about three ships' lengths.

That the proper charts were used and that they were corrected to date and that the compass error was known accurately.

That the course south 84 east was steered from 1308 instead of North 84 East, as intended and as laid down by the commanding officer.

That the navigator failed to verify the course actually being steered on coming on the bridge at about 1310.

That if the course north 84 east had been steered from 1308 until the change at 1324 then the ship would have passed clear of the White Rocks and the Lamocks.

The weight of the evidence is to the effect that the captain gave the order South 84 East.

The court expressed its opinion as follows: The grounding of the cruiser was due to the following causes:

The error of the commanding officer in giving a course of South 84 East when North 84 East was intended, this fact being due directly to the fact that obsolete compasses were used.

The failure of the navigator to check the course being steered when informed by the commanding officer that the course had been changed during his absence from the bridge.

The court recommended that a letter of reprimand be given to the commanding officer for his failure to take greater precaution to avoid the repetition of the error that he made in labeling the course to be steered when laying it out on the chart.

That the navigator be reprimanded for failing to satisfy himself that the ship was being steered on the course which the commanding officer told him had been ordered.

GROUNDING CASE NO. 9

Principal Points Involved.

- (a) Procedure while in company in a fog.
- (b) Checking of compasses to ascertain compass deviations.
- (c) Reception plotting of radio-compass bearings and soundings.

Findings and Recommendations of the Court of Inquiry.

- (1) That the navigation was incorrect.
- (2) That the speed used was incorrect.
- (3) That the commanding officer failed to obtain proper compass bearings.
- (4) That hand leads were not used.
- (5) That the commanding officer went on assumptions rather than ascertained facts.
- (6) That the commanding officer be tried for negligence in suffering a vessel to be stranded.

GROUNDING CASE NO. 9

A destroyer division left San Diego for San Francisco, Calif., on the morning of November 29, 1922, the division commander on the leading boat. The division consisted of the *B*—, the *C*—, *Ta*—, *Tw*—, *Ja*—, and the *Good*.

They proceeded on various courses up the coast and entered the Santa Barbara Channel. The division was proceeding in formation, line of sections, the *B*— leading one section and the *Tw*— leading the other. The *Good* was in the second section.

The *Good* had to fall out of the formation, due to boiler trouble, and the *Ta*— was directed to stand by. Later they rejoined. Standard speed was 14 knots. The weather was fine, with very little wind.

During the first day's steaming the *Good* found that her compass was not properly corrected, and the courses she had to steer did not check with those set by the flag. No attempt was made to swing ship or to obtain permission to swing ship. The division commander was not informed of the fact that the deviation table was unreliable.

At 0108 November 30, an accurate position was obtained on Santa Barbara Light, course 280° true, light abeam distant 12 miles. This was the last accurate position obtained.

At 0220 Point Conception Light was sighted bearing 326° true. No further bearing of this light was obtained. At 0400 *B*—, the division flag, changed course to the northwestward. Previous to this change she had sent out word that when Point Conception was abeam the course would be changed. Shortly before 0400 a heavy fog had set in. As a result of this fog the division became scattered.

At 0405 the *Good* slowed to one-third speed. At 0420 she changed course to 318° true and went ahead at two-thirds speed, 10 knots. From this time on, with but one exception, land was not seen until the grounding. This exception was the sighting of mountain tops to the eastward on the afternoon of November 30. These were taken to be to the southward of Point Sur.

For a considerable time the *Good* was steaming alone. Later the *Ta*—, the *C*—, and *Ja*— joined company.

After changing course at 0420 to 318° true the following changes of course and speed were made by the *Good*.

At 0700 the course was changed to 328° true, and at 1245 to 337° true. The fog lifted slightly at this time and then shut in thick 20 minutes later. At 1305 the course was again changed to 328° true, and at 1515 to 338° true, when the speed was reduced to 8 knots. At 1810 the speed was changed to 10 knots. At 1915 the speed was increased to 15 knots. At 1932 the *Good* slowed to 12 knots. At 2030 the course was changed to 357° true, and at 2035 speed was reduced to 5 knots. At 2300, course 45° true. At 2344, speed 6 knots. At 2353, speed 12 knots.

Beginning at 2300 a line of soundings was taken, a sounding every 15 minutes. The soundings were as follows: At 2305, 70 fathoms, hard gray sand; 2320, no bottom at 75; 2335, no bottom at 63.

At 0005, December 1, sounding bottom at 55 fathoms, fine gray sand. At 0020, stopped for sounding, bottom 44 fathoms, gray mud. At 0021, went ahead $1\frac{1}{3}$ speed, 6 knots. At 0037, went ahead at 10 knots. At 0050, sounding bottom at 43 fathoms, gray mud. At 0050, changed course to 0° true. At 0105, sounding bottom, 32 fathoms, fine gray sand. At 0120, sounding 23 fathoms, fine gray sand. At 0150, sounding 44 fathoms, fine gray sand. At 0205, sounding 26 fathoms, fine gray sand.

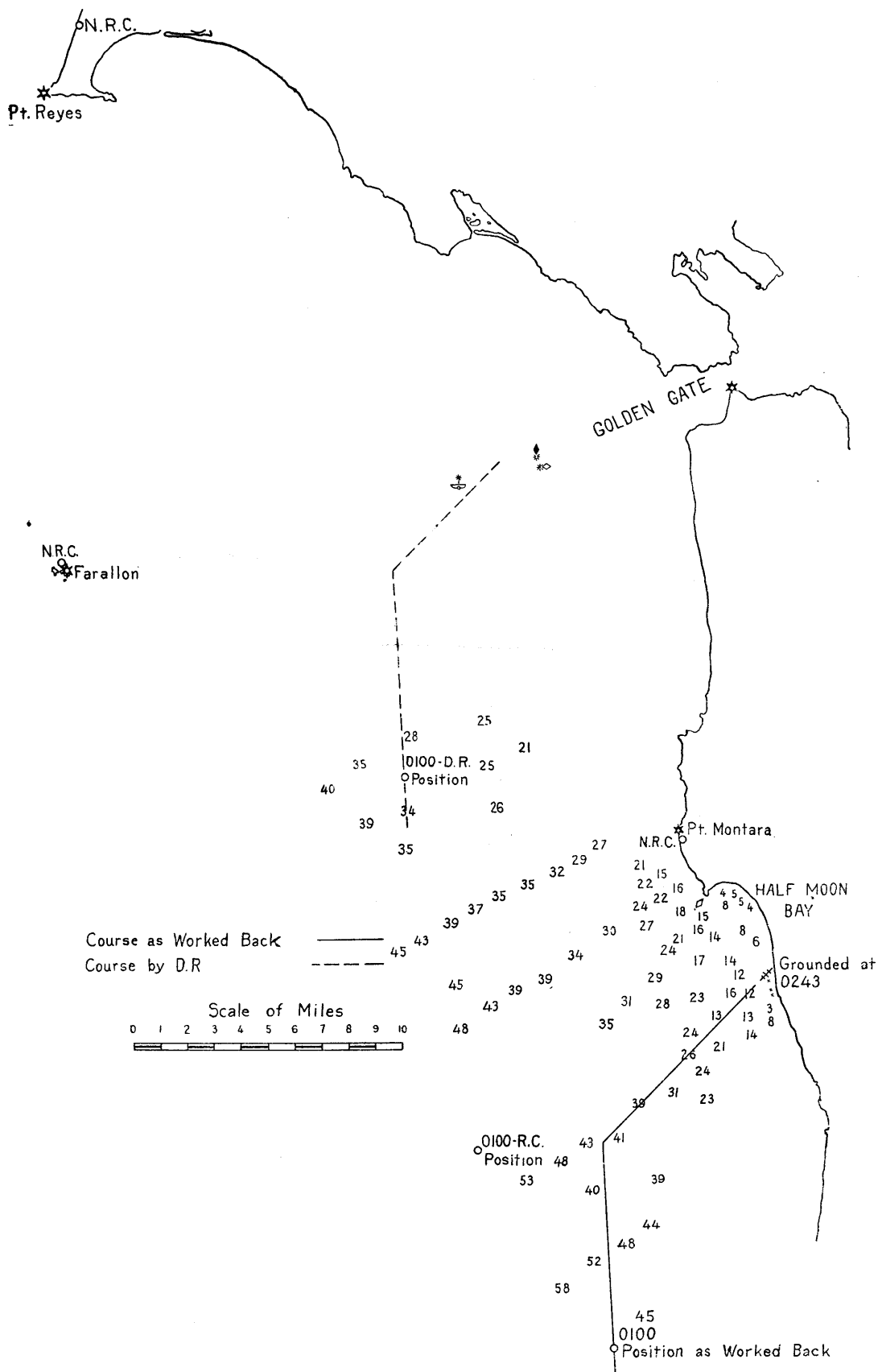
As a result of these soundings the commanding officer judged that he was to the southward and westward of San Francisco Lightship. The dead-reckoning position as worked out with speed and courses put the ship about 6 miles to the northward and eastward of Point Bonita and on land.

At 0220 the course was changed to 42° true and a sounding gave 25 fathoms, fine gray sand.

The commanding officer stated that he assumed his position to be that found by using the line of soundings. This was to the southward and westward of San Francisco Lightship, so he changed course to head for the lightship. At 0235 a sounding gave 18 fathoms, rocky bottom. This sounding agreed with the assumed position.

Beginning at 2120, radio compass bearings were received from the Farrallones, Point Montara, and Point Reyes. The Farrallones, 156; Point Reyes, 161; Point Montara, 181. At 2235, Farrallones, 148; Point Reyes, 185. At 0050, December 1, a radio bearing was sent to the *B*—, which was interpreted as putting the *B*— to the southward of the *Good*.

At 0243 the ship struck bottom and remained hard and fast aground. Immediately the danger signal was sounded and break-



down lights shown. The three ships in company with the *Good* did not go aground.

At the subsequent court of inquiry, ordered as a result of this grounding, the following additional information was brought out.

During the morning of November 30 the commanding officer of the *Good* had taken an azimuth and as a result found that the compass error was $11^{\circ} 37'$ westerly, on the heading 322° p. s. c. No other azimuth was taken, although this azimuth showed that the deviation table was 5° to 8° in error on this one heading.

Radio compass bearings obtained at 1615 were inaccurate and the mean of the intersections put the ship to the northward and westward of the dead-reckoning position.

The position as obtained by using the bearing received at 2120 gave the ship's latitude $37^{\circ} 22' N.$, $122^{\circ} 37' W.$ The dead-reckoning position as used by the commanding officer was 6 miles, 237° , from this bearing. As a result of the radio bearing received at 0100, December 1, the position was latitude $37^{\circ} 33' N.$, longitude $122^{\circ} 33' W.$ The dead-reckoning position was latitude $37^{\circ} 48' N.$, longitude $122^{\circ} 22' W.$, and the 0100 position as worked back from the point of grounding was 22.3 miles, 168° true, from the dead-reckoning position, and the radio compass bearing was 327° , $8\frac{1}{2}$ miles from the true position.

The *Good* grounded in Half Moon Bay in latitude $37^{\circ} 26' 50'' N.$, longitude $122^{\circ} 26' 40'' W.$, and in $1\frac{3}{4}$ fathoms of water.

The court of inquiry found the following facts established:

That the course steered and distances run by the *Good* for 20 hours preceding the grounding were not correctly entered in that vessel's log. That although the commanding officer ascertaining that his deviation tables, which were dated August 17, were in error, he made no effort to obtain correct deviations, nor did he request authority to do so prior to the grounding.

That the testimony showed that during the run from San Diego to Santa Barbara Light abeam, the *Good* made less speed over the ground than called for by her revolutions.

That the last accurate position obtained was Santa Barbara Light abeam, distance 12 miles, bearing 24° true. This position was obtained by bow and beam bearings.

That the grounding of the *Good* at 0243 December 1 was due to the fact that the dead reckoning from the last shore navigational fix was incorrect. This dead reckoning was incorrect, inasmuch as no allowance was made for a southerly set of current.

That the speeds used were incorrect.

That these facts, coupled with the fact that the deviation tables were known to be incorrect, as shown by the commanding officer dis-

carding these tables in reckoning his position, caused him to assume a position by use of a line of soundings.

That the assumed point was incorrect and the courses and speeds used subsequently were incorrect and were the direct causes of the grounding.

That the other destroyers in company with the *Good* altered courses and speeds so that they maneuvered clear of danger.

That at the time and immediately before the grounding the *Good* was not using the hand leads.

That no warning was received or seen of the dangerous proximity to land until a few seconds before the grounding.

That the *Good's* dead-reckoning position at 0243 December 1 was so inaccurate as to be discarded as useless.

That the commanding officer assumed his ship to be in the vicinity of San Francisco Light Vessel, having arrived at this supposed position by means of a line of soundings which checked fairly accurately with the soundings shown on the charts.

That these soundings checked as well over the course actually run, which course was to the southward and eastward of the assumed courses.

That on account of the wide diversity of fixes obtained by plotting the various radio-compass bearings, the commanding officer of the *Good* regarded them as being of no value, although the last and closest set of bearings placed him well to the southward of his assumed position.

That the bearings were inaccurately received.

That had the commanding officer of the *Good* taken the average position of the 0100 December 1 bearings, as intercepted, he would have been warned that his easterly course was unsafe.

That the speeds used for navigation were proper.

That no reliance was placed on the radio-compass bearings received by the other three destroyers in company.

That the commanding officer of one destroyer, the *B* —, had experienced a marked southerly current.

That the commanding officer of the *Ta* — believed the *Good* to be on a dangerous course and sheered out of formation to be safe.

That he did not communicate his fears to the commanding officer of the *Good* and gave no valid reason for them.

The court stated in its opinion as follows:

That the commanding officer was inexperienced, and that he failed to properly navigate his ship and failed to exercise due caution in approaching land in that he failed to take safe courses when his dead-reckoning position was shown by run to be manifestly and considerably in error.

That he failed to exercise due caution in that had he compared his line of soundings with other localities in the vicinity he would have cast an element of doubt on the position he assumed.

That he failed to exercise due caution in that he did not order anchors to be ready for letting go when approaching the coast of California.

That he failed to exercise due caution in taking proper cognizance of radio bearings received, well knowing at the time of the last set of bearings, 0100 December 1; that his ship was in a position of doubt, the accuracy of which position was dependent solely on soundings of which certain ones were assumed to be in error.

The court recommended that the commanding officer of the *Good* be tried by general court-martial on the charge of negligence in suffering his vessel to be stranded.

GROUNDING CASE NO. 10

Principal Points Involved.

- (a) Duties of the senior officer present and the commanding officer of a ship when engaged in hazardous undertakings.
- (b) Necessity for thorough knowledge of tidal conditions, weather conditions and hydrographic conditions.
- (c) The necessity for accurate, rapid, and continued communication.

Findings and Recommendations of the Court of Inquiry.

- (1) That the attempted salvaging operations were improperly handled.
- (2) That the commanding officer of the vessel that was stranded used poor judgment.
- (3) Trial by court-martial.

GROUNDING CASE NO. 10

Early in December a submarine was grounded on the California coast in the vicinity of Humboldt Bay. After an unsuccessful attempt at salvage with a tug and tender, a board was ordered to investigate the feasibility of further salvage operations.

Three vessels, a cruiser, a high-power tug, and a tender, the *Ceres*, were ordered to take part in the operations. The senior officer present, and also in charge of the operations, was the commanding officer of the *Ceres*.

There were conferences between the board and the commanding officers of the ships with regard to the salvage operations. As a result of the conference it was decided to pull the wreck off through the breakers, using the ships then present.

The coast at this point runs in a northeasterly-southwesterly direction. It is comparatively steep-to, with a sandy beach and a hard sand and gravel bottom. A mile offshore the water has a depth of about 10 fathoms, then shoaling rapidly to the outer line of breakers, which is about a half mile from the beach. Just outside of these breakers the water has a depth of $5\frac{1}{2}$ to 6 fathoms.

There are three lines of breakers, and inside at all times the water is broken and choppy. Under normal conditions the water outside the breaking of them is comparatively smooth, except for the heavy Pacific ground swell. The current sets south along the coast. In the breakers the current is southerly on the ebb and northerly on the flood tide.

The disposition of these ships while pulling was as follows:

The cruiser was to anchor as near as possible to the line of breakers and take the towline from the wreck. The tug was to take a towline from the cruiser's starboard bow and steam ahead at all times to keep the cruiser's head up to the northward against the current. The *Ceres* was to anchor a little way to seaward of the cruiser and take a line from the cruiser's port bow; in that way acting as a preventer.

The pulls were to be at high tide, as at that time the water extended about a hundred yards inshore of the wreck, while at low tide it was about the same distance to seaward.

The towline was passed around the hull of the wreck and then out through the surf to the towing vessel. This line was made fast at the cruiser to a mooring swivel and the swivel to a 5-fathom shot of 2½-inch chain. The chain was secured on the deck of the cruiser by means of shackles to a wire strap passed around the superstructure. Two threefold purchases were secured to the towline for use in unshackling. For use in an emergency, hack saws were also at hand. No other means of quickly shipping the towline were supplied. No pelican hooks were used, as those on board were too light to stand the ordinary strain of towing.

When not engaged in making a pull, the cruiser lay to her starboard anchor with about 30 fathoms of chain. Her heading was about 270° true. Her stern was normally about 200 to 250 yards from the line of breakers.

She had steam on 6 of her 16 boilers and the engines were warmed up and ready for instant use.

In making pulls a speed of 60 r. p. m. was the maximum, while 25 r. p. m. was the slowest which the engines would turn over.

Two navigational buoys were planted as guides to show if the ship was being set into danger in either direction. These buoys were planted about 50 yards on each side of the towline in 5 to 6 fathoms of water, just outside of the first line of breakers.

The speed of the tug was varied so as to keep the cruiser headed as near to 270 as possible. The speed was generally increased while making a pull. In fact, full speed was then generally necessary. Twice during a pull the tug's 10-inch manila towline carried away.

The *Ceres* was anchored about dead ahead of the cruiser lying to both anchors with 90 fathoms of chain. From her stern chocks a 10-inch manila line led to the port bow of the cruiser. The purpose of this was to insure that there would still be an anchor or the equivalent to keep the cruiser from being set into the beach, in case the line to the tug should carry away.

There was an officer with a gang of men on the beach to take care of that end.

Several pulls were made. It was necessary to make them at high water, but in order to get the maximum pulling effect it was found necessary to start the engines ahead about an hour before and gradually increase the turns. In doing this the cruiser would fore reach as she pulled the towline out of the sand and overran her anchor. To keep the anchor and chains from fouling the towline or propellers, the anchor would always be hove up and immediately gotten ready for letting go.

Only the tug pulling on the starboard bow and the preventer to the *Ceres* kept the cruiser from being set to the southward on to the beach each time she made a pull.

The ship's head, although normally 270° , true would swing to 260° or even to 240° when a pull was being made, and as she swung the tug would be directed to increase speed and to pull her back into position.

On the afternoon of the 12th a pull was made, and while in the midst of this pull the preventer to the *Ceres* carried away. The *Ceres* position was believed to be dangerous, so she got under way.

The *Ceres*, being in need of fuel and provisions, sent word to the cruiser that upon the completion of the pull she, the *Ceres*, would carry out the cruiser's anchors and then proceed to port. Several unsuccessful attempts were made to do this. A thick fog set in as the last attempt was being made. The *Ceres* proceeded farther out to sea and anchored in 12 fathoms of water. The fog hid her completely from the cruiser.

As the fog set in the following signal was sent from the *Ceres* to the cruiser:

"Drop your anchor, cease hauling. I will carry out your anchors for you. Take a slight strain at each high water. Have cable ready to slip with a large anchor and buoy in case of storm."

A signal was usually sent to the tug and the beach party before making each pull.

During the evening and night of the 12th-13th the fog continued and was so thick that nothing farther than 50 yards could be made out. In the first watch the officer of the deck noticed that the ship's head fell off slightly to the southward, but by increasing the speed of the tug it went right back to the proper heading. There were no indications that the cruiser was being set to the southward.

The captain of the cruiser had directed his "officer of the deck" to make all preparations for a pull at 0320, high water on the morning of the 13th. He was called and took over the deck at 0210. All preparations for the pull were made. The engines were started ahead at 30 r. p. m. and the speed was gradually increased to 60 turns.

A signal was sent to the tug that a pull was about to be made. It later developed that the tug captain did not receive this signal. No signal was made to the shore party or to the S. O. P. that a pull was about to be made.

An officer was stationed on the forecastle and the executive on the quarterdeck, leadsmen at the drift leads, in the chains, and aft on the quarterdeck. The searchlights were turned on and used in the endeavor to see the navigational buoys and the towline.

The normal sounding aft was about 7 to $7\frac{1}{2}$ fathoms. The towline bore approximately dead astern to slightly on the starboard quarter.

The reports that were being continually received from the leadsmen and the officers did not show anything abnormal. As the engines were started the anchor was hove up and gotten ready for letting go. The ship's head fell off to 240 true and seemed to hang there. Although this was not considered dangerous, word was sent to the tug to increase speed.

The fog was so thick that neither of the navigational buoys could be seen, nor could the towline be followed for more than about 50 yards. No other navigational aids could be seen, nor any other ships. Soundings were being continually reported to the officer of the deck.

The pull was continued at 60 r. p. m. until 0323. This was all that could be made with the boiler power in use. At 0342, the captain gave the order to decrease revolutions to 30, high water being passed. The intention was to gradually reduce speed and stop the pull.

At this instant the executive officer hailed the bridge from aft and reported that he had felt a shock as if the cruiser's rudder had touched bottom. Just prior to this the leadsmen had reported 6½ fathoms.

Orders were immediately given to drop the starboard anchor, followed by the port anchor, veer to 30 fathoms and hold on the brakes. Signal was sent to the tug to go ahead at full speed.

The towline from the tug was tending about three points forward of the cruiser's beam.

The cruiser's engines were stopped and an attempt was made to unshackle the towline. This was unsuccessful at this time.

At this time orders were given to slip the towline, but all attempts to do so were unsuccessful for a matter of about 15 minutes. The towline had been shackled to the straps around the superstructure. The great weight of the line put such a heavy strain on the cable that it was found impossible to drive out the shackle pins with sledges. The pins were driven half way out but stuck there. The block and tackles provided were insufficient to relieve this strain and allow the unshackling. The hack saws, etc., were then put to use, but were not successful in parting the towline until after the stranding. Both bower anchors had been let go and 30 fathoms veered on each chain. The anchors were held at the brakes. A heavy strain now came on the cables, and orders were given to veer to 45 fathoms, where they were again held. At this time the sheet anchor was let go and held under foot.

Report from the chains was to the effect that the ship was drifting slowly to the southward. The captain attempted to swing the ship's head to seaward by use of the engines and pivoting on the anchor chains. If this had been successful, he intended to go ahead full

speed on both engines. At this time the soundings were $4\frac{1}{2}$ fathoms forward and 5 fathoms aft. The towline had been cast loose.

The ship was parallel to the beach and practically in the first line of breakers.

Failing in the attempt to swing the ship's head to the northward, an endeavor was made to back out. Both engines were stopped, then full speed astern port was given, but no stern board was made. The ship was now in $3\frac{1}{2}$ fathoms forward and $4\frac{1}{2}$ fathoms aft. She was pounding heavily and had assumed a list of 5 to 15° to starboard. The port engine was kept going full speed astern, with the hope that the ship might be forced clear of the breakers. This was kept until 0600, at which time firerooms were abandoned, as they were flooded. The ship grounded at approximately 3.50 a.m., January 13, and was carried in through the second line of breakers, where she was fast aground.

The subsequent court of inquiry found the following facts established:

That the cruiser grounded between 3 and 4 a.m. on the morning of January 13.

That on the night of January 12-13 the weather conditions were as follows: Heavy fog, sea moderate, increasing calm, barometer rising slowly.

The tug remained under way throughout the night and was constantly hauling on the cruiser's bow. The commanding officer of the cruiser, after a conference with the officers, decided to take a 60-turn pull on the high tide of the night of 12-13, then to slip the towline and move the ship out, as he considered the position dangerous. The commanding officer of the tug received no word from the cruiser that a pull was being attempted on the morning of January 13. Although hand leads and drift leads were in use during the high-tide pull of January 13 while the anchor was aweigh, there was no effective method of telling in the fog whether or not the ship was drifting into danger.

Searchlights were turned on and directed toward the beach, the cables attached to the wreck and the navigational buoys, but except for a few yards of the towing cable none of the above could be seen.

That at about 0342 the cruiser's stern struck bottom. Anchors were let go and instructions sent to the tug to go ahead full speed. The engines were stopped temporarily and an unsuccessful attempt made to unshackle the towing cable. The cables were then cut with hack saws, but meanwhile the ship had entered the breakers. Effort was made with the engines and the tug to extricate the ship, but without success.

That at about 0420 the towline from the tug parted, at which time the stern of the tug was in the breakers, but she was able to save herself.

The plan of salvage was advocated by the captain of the cruiser, and it was ordered to be carried out by the commander in chief, and the salvage board appointed considered it practicable and advisable. The plan was hazardous and involved a very difficult problem in seamanship. The assigned position of the cruiser after she took the towline was such that she could drift or swing on the end of the towline only about 250 yards before grounding. The towlines from the wreck to the cruiser were attached by a mooring swivel to two shots of 2½-inch chain cable. At the stern of the cruiser the cables passed through the stern chock, and being shackled with ordinary shackles to the towing bridle, the wire hauser passed entirely around the after end of the superstructure of the cruiser. The cruiser was therefore practically anchored by the stern, which fact would give her rudder and her engines very little, if any, steering effect when steaming with a strain upon the towline.

The towline as fitted weighed tons, and the dependence was placed upon tackles on the quarter-deck to take in sufficient slack in order to take the strain off the bridle, and thus make it possible to unshackle and slip the towline. Hack saws were provided in case slipping was impracticable. The means depended upon for slipping, or cutting a towline of such weight, attached in the manner described, were plainly inadequate.

The plan to use a cruiser in the position assigned could be justified only by the adoption of the following precautionary measures, all of which should have been kept in operation at all times:

- (a) The towline should have been so attached on board the cruiser that it could have been slipped with certainty and with safety.
- (b) The cruiser should have been anchored with at least one anchor and with a scope of 100 fathoms of chain, the second anchor being held in readiness to let go quickly in an emergency. The *Ceres* should have been anchored to the seaward of the cruiser, with a long scope of chain and with a heavy line or lines attached to the cruiser at all times. The tug should have been employed in keeping the cruiser's head up against the current. The cruiser should have been prepared to use full boiler power in case of an emergency. The position of the cruiser should have been fixed by cross bearings, with constant observation upon fixed objects on shore, to determine if she changed position toward the breakers.

During several high-tide pulls previous to the grounding of the cruiser her anchors were lifted and the tug was under way with a line from the cruiser's starboard bow and with the *Ceres* at anchor to seaward with a line to the cruiser's port bow, which were depended upon to keep the cruiser's head to seaward and up against the prevailing southerly current. That dangers were present is emphasized by the fact that the towline to the tug was carried away twice and the line to the *Ceres* cut by the *Ceres's* propeller. The cruiser, left without the *Ceres* as a preventer, was in a perilous position.

The court stated its opinion as follows:

The court is of the opinion that the plan adopted would not have been unduly hazardous to the safety of the vessels had the plan been carried out in all respects with care and proper attention to good seamanship. In the opinion of the court the immediate cause of the stranding of the cruiser was the unauthorized and ill-judged action of her commanding officer in making a pull on the morning of January 13. That the secondary cause of the stranding of the cruiser is found in the fact that there was no line to the *Ceres*, that the cruiser's anchor was up, that a dense fog prevailed, and that the towline could not be quickly slipped by the cruiser. The court is further impressed with the looseness of the organization and the lack of coordination of the various units engaged in the salvage operation. The court is further of the opinion that bad judgment was used by the senior officer present and the commanding officer of the cruiser, and that they showed a woeful lack of knowledge of seamanship in certain respects, and failed to fully realize the grave danger involved.

The court recommended that the commanding officer of the *Ceres*, the senior officer present, and the commanding officer of the cruiser be tried by general court-martial for inefficiency in performance of duty.

